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To whom all communications should be addressed.

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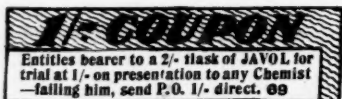
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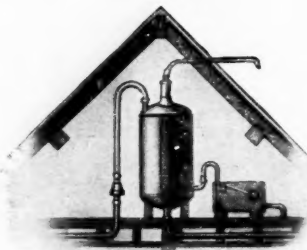
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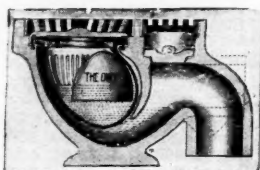
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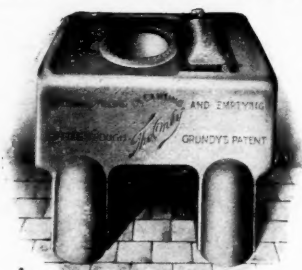
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Fifth	W. J. Moorhead	7,236
Sixth	C. W. B. Tuke	7,166
24th	J. R. Pinsent	6,493
27th	H. W. Crippin	6,411
32nd	...	...	L. H. King-Harman	...	...	6,372
35th	...	...	R. B. Pargiter	...	...	6,339

This is the second time in two years we have passed **three** out of the first **six** for Woolwich.

SANDHURST.

12th	...	...	C. W. Maxwell	...	...	5,172
13th	...	...	R. C. Money	...	...	5,169
27th	C. T. Ellison	4,912
38th	B. C. H. Keenlyside	4,644

CAVALRY.

7th	A. M. Sassoon	3,481
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MILITIA COMPETITIVE EXAMINATION, OCTOBER, 1907.

CAVALRY.

6th	...	C. A. L. Green	...	Yorkshire Dragoons	...	2,917
8th	...	Hon. F. C. Montgomerie	...	Argyll and Sutherland Highlanders	...	2,885

INFANTRY.

6th	...	L. D. Daly	...	Royal Munster Fusiliers	...	3,472
13th	...	W. V. Lumsden	...	Seaforth Highlanders	...	3,265
17th	...	M. B. Selby-Smyth	...	Rifle Brigade	...	3,246
21st	...	H. F. P. Hornsby	...	Cornwall and Devon Miners Artillery	...	3,220
22nd	...	F. S. Whinney	...	Lincolnshire Regiment	...	3,217
27th	...	H. E. Hosking	...	East Surrey Regiment	...	3,128
30th	...	A. W. C. Richardson	...	West Yorkshire Regiment	...	3,098
32nd	...	J. D. Gilkison	...	Cheshire Regiment	...	3,067

ARMY QUALIFYING, SEPTEMBER, 1907.

THE FOLLOWING PASSED FROM US:—

H. S. F. Cosens.	C. Jackson.	*M. Alexander.
J. V. Dawson.	S. C. B. Munday.	*G. Frecheville.
C. Hilton.	C. H. Waring.	*L. F. Page.

* Passed in Mathematics I.

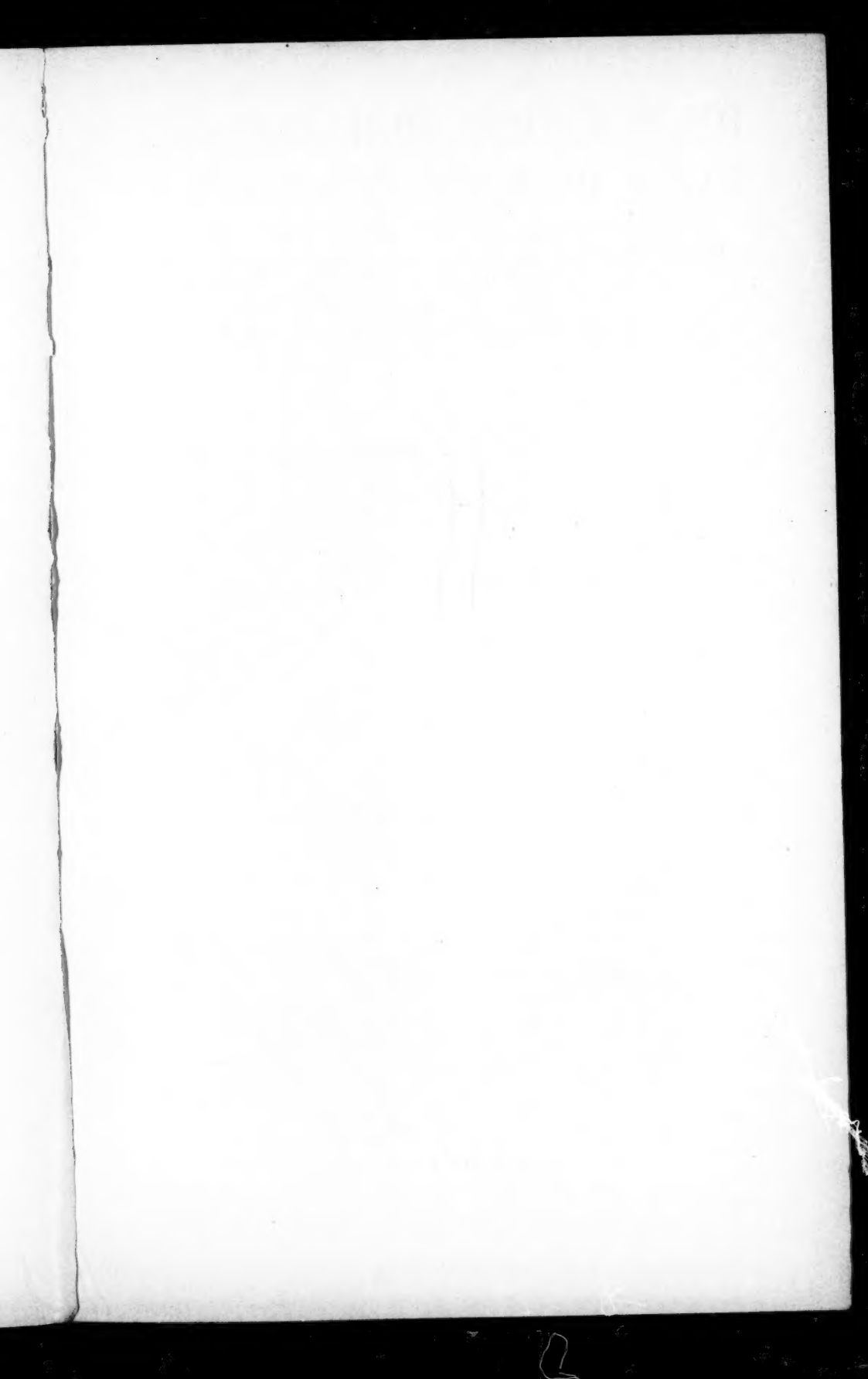
PROMOTION.

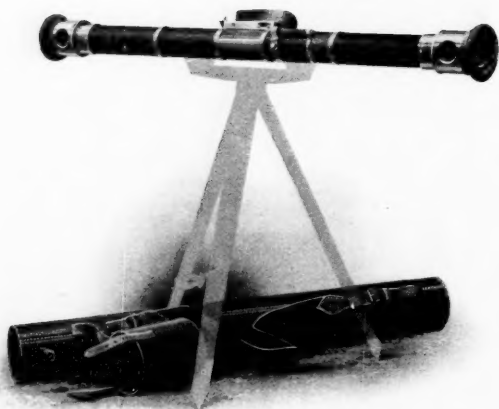
Work for both "C" and "D" is now going on. Upwards of Sixty passed from us in November last.

STAFF COLLEGE, 1907.

NINETEEN Officers passed from us in the Competitive List and SIX others received Nominations.

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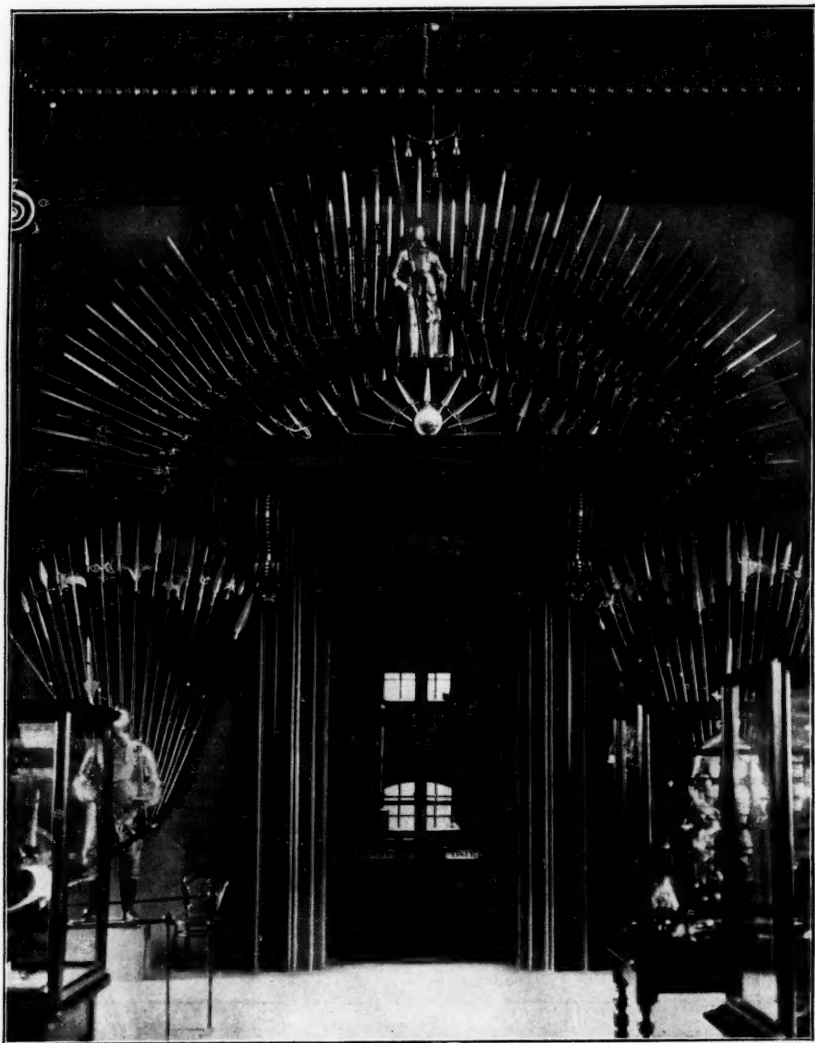
This Rangefinder is covered externally with brown leather, and is fitted with pads on the ends to prevent damage by rough handling. It is supplied in a strong leather case, as shown, fitted with a shoulder-strap.

The tripod shown in the illustration is not supplied with the instrument as the Rangefinder is so constructed that it can be used with ease without a stand.

Approximate uncertainty of observation :—

2 yards	at 600 yards.
6 "	1,000 "
150 "	5,000 "

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The Trophy of Weapons around the Main Door at the South End of the Museum.

J. J. K. & Co., Limited, London.



PRINCE EUGENE AT BELGRADE.

From an oil painting by Van Wyck in the possession of T. CROYSDALE, Esq.,
of Hawke House, Sunbury-on-Thames.

ERRATUM-DECEMBER JOURNAL.

Page 1568, Line 19, for "Army" read "Arm."

THE JOURNAL

OF THE

ROYAL UNITED SERVICE INSTITUTION.

VOL. LII.

JANUARY, 1908.

No. 359.

[Authors alone are responsible for the contents of their respective Papers.]

SECRETARY'S NOTES.

1. ROYAL VISITS.

His Majesty The King honoured the Institution by a visit to re-open the Museum on Thursday, 19th December.

Field-Marshal H.R.H. The Duke of Connaught (the President of the Institution) and H.R.H. The Duchess of Connaught visited the Museum on Tuesday, 17th December.

2. OFFICERS JOINED.

The following officers joined the Institution during the month of December :—

Second-Lieutenant R. A. Colville, Coldstream Guards.

Captain C. C. Robertson, R.F.A.

Captain J. Duncan, D.S.O., Royal Scots Fusiliers.

Captain N. C. King, London Rifle Brigade.

Lieut.-Colonel Hon. W. E. Cavendish, Grenadier Guards.

Captain N. A. Thomson, Seaforth Highlanders.

Colonel G. E. Even, Indian Army.

Surgeon-General L. D. Spencer, C.B., K.H.S.

Second-Lieutenant T. L. N. Mostyn, 7th Bn. Royal Fusiliers.

Second-Lieutenant C. H. K. Phillips, 2nd V.B. Royal Warwickshire Regiment.

Captain C. H. Villiers-Stuart, Indian Army.

Captain T. Ormsby, Army Pay Department.

Lieutenant A. F. Macaulay, R.E.

Lieutenant V. P. Smith, R.E.

Lieutenant S. H. F. Muriel, Border Regiment.

Captain W. H. E. Segrave, Highland Light Infantry.

General Sir C. C. Egerton, G.C.B., D.S.O.

Second-Lieutenant J. F. N. Baxendale, Hampshire Imperial Yeomanry.

(No officer of the Royal Navy or the Royal Naval Reserve joined the Institution during the month.)

3. SUMMARY OF MEMBERS.

The Council have pleasure in reporting that during the past year 247 officers joined the Institution. There were 135 withdrawals and 108 deaths, making an increase of 4 on the year. The details of officers joining are as follows:—

Regular Army	...	...	...	...	173
Royal Navy	...	...	...	...	26
Volunteers	...	...	...	...	25
Imperial Yeomanry	...	...	...	...	9
Militia	...	...	...	...	7
R.N.R. and R.N.V.R.	...	...	...	...	5
Royal Marines	...	...	...	...	2
Total...	...	...	...	...	247

It is a matter of great regret to the Council that so few officers have joined from the Royal Navy; but the present state of uncertainty owing to the reorganisation of the Auxiliary Forces is doubtless responsible for the paucity of officers joining from the Militia, Yeomanry, and Volunteers.

4. ROYAL PROCESSION TO PARLIAMENT.

On the occasion of His Majesty The King opening Parliament in State on Wednesday, 29th January, the Museum will be closed to the public until the Royal Procession has returned. Members of the Institution may admit personally two friends to the Museum. The new building will be open to members as usual.

5. NAVAL ESSAY, 1908.

The Subject of the Naval Gold Medal Essay, 1908, is:—

“The Command of the Sea: What is it?”

The Admiralty have given permission for officers to write on this subject.

6. ADDITIONS TO THE MUSEUM.

- (a) A mezzotint engraving of the Marquis of Anglesey, Colonel 7th Hussars.—(Presented).
- (b) A mezzotint engraving of Field Marshal Viscount Cobham, Colonel 4th Dragoons, 1710.—(Presented).
- (c) A line engraving of the Earl of Orkney, Colonel 1st Royal Regiment of Foot (1666-1737).—(Presented).
- (d) A coloured engraving by Dighton of Officers of the Royal Horse Guards, 1805.—Given by Major E. S. Jackson, 6th Dragoons.

THE STRATEGICAL POSITION IN THE NORTH SEA AS STRENGTHENED BY THE "FORTH AND CLYDE BATTLE-SHIP CANAL" AND THE "DOVER AND SANGATTE TUBE RAILWAY."

By Vice-Admiral Sir CHARLES CAMPBELL, K.C.M.G., C.B., D.S.O.

Wednesday, 13th February, 1907, at 3 p.m.

The Right Hon. Sir J. R. COLOMB, P.C., K.C.M.G., in the Chair.

1. THE FORTH AND CLYDE BATTLE-SHIP CANAL.

THE attention of the public has been frequently called to projects for uniting the two most frequented seas in the world, the Atlantic and North Sea, by means of a ship canal through Central Scotland, along the route of the present barge canal. I propose to submit to you for discussion plans for the construction of a battle-ship canal 29 miles, 6 furlongs, 198 yards long, 36 feet deep, and 120 feet wide at the bottom, capable of floating the largest ocean-going merchant steamers and battle-ships, and extending from Yoker on the Clyde to Grangemouth on the Forth.

This route has been surveyed by engineers of the highest standing, and their report clearly demonstrates the practicability of the project from an engineering point of view.

This "water-way" would be of enormous benefit to the commerce between Canada and America, and Great Britain and Northern Europe, and a most valuable addition to the strength of our strategical position in the North Sea; it would also greatly increase the mobility of our battle-ships, cruisers and torpedo craft, and provide means of recuperation to an extent almost impossible elsewhere.

The paramount importance of a safe and speedy means of transport from the Atlantic Ocean to the North Sea, and *vice versa*, other than by the English Channel or Pentland Firth, cannot be too forcibly insisted upon. Such a road would be invaluable in the strategical consideration of our position with reference to other nations, whose shores are watered by the so-called German Ocean. To have the power of mustering and sheltering fleets in closed waters, ready at a few hours' notice to operate on either coast or in either sea, would alone be sufficient to justify the expenditure of the capital required, and, in addition, we would develop an enormous volume of trade from Canada and America coming North of Ireland, *via* the Clyde and

Forth Battle-ship Canal for distribution at the Eastern ports, including the port of London.

In the event of a war of sufficient magnitude to test our available protecting resources, this trade route could be safeguarded at a minimum cost in cruisers, and far more efficiently than the English Channel route, and it would have the further important advantage of drawing the hostile cruisers away from their base.

After a close study of the pros and cons, one is astounded that this ship canal has not been an accomplished fact years ago, whether by private enterprise, or as the result of Government legislation.

As a State concern, it can boast of a combination of the *maximum of national safety*, with the *minimum of national outlay*; as, as a private concern, can safely count on a very considerable return on the capital invested, estimated at £17,000,000.

It would develop local trade and protect national commerce, which would greatly increase in volume. It would aid in maintaining our commerce against foreign competition in times of peace, safeguard it from hostile acquisition in the event of war, and, at the same time, prove a highly remunerative undertaking.

There is no reason why the whole water-way between Yoker and Grangemouth should not be practically one elongated dock and coaling station. Coal is abundant, minerals are there, labour is close at hand, the supply of water is ample, and the formation of the country is such that the engineering difficulties are trivial.

The present Forth and Clyde Barge Canal was completed in 1790, and, opened from sea to sea, soon became one of the most remunerative undertakings in Scotland. In 1850 the income was £115,621. A great battle-ship canal in the present day may be reasonably expected to yield a revenue ten times as large as the small barge canal of 1850.

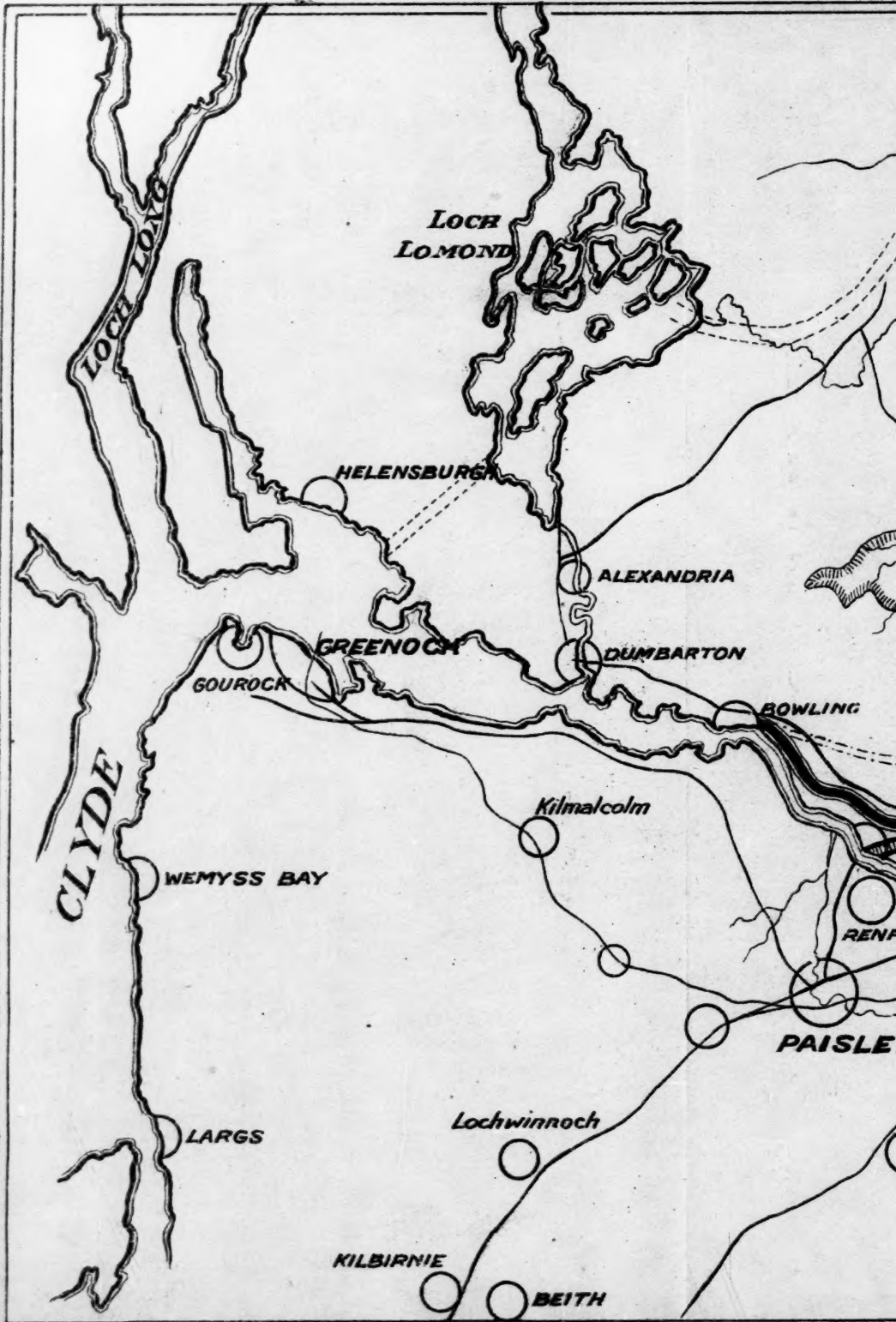
PHENOMENAL ADVANTAGES AS REGARDS EXCAVATION.

Mr. James Bennie and Dr. James Croll, F.R.S., of the Geological Survey of Scotland, discovered that at a remote period the tides and currents of the ocean have cut their way, even through the solid rock, over the route of the proposed ship canal, and that at a later period these tides and currents have filled up the excavation with drift deposits of sand, gravel, and clay—establishing the fact that there is a deep trough which traverses Scotland at its narrowest and lowest part, i.e., the district connecting the estuaries of the Forth and Clyde. The bottom of this trough is estimated to be 200 feet below sea level, and the width, where it passes through coal workings, about 600 yards.

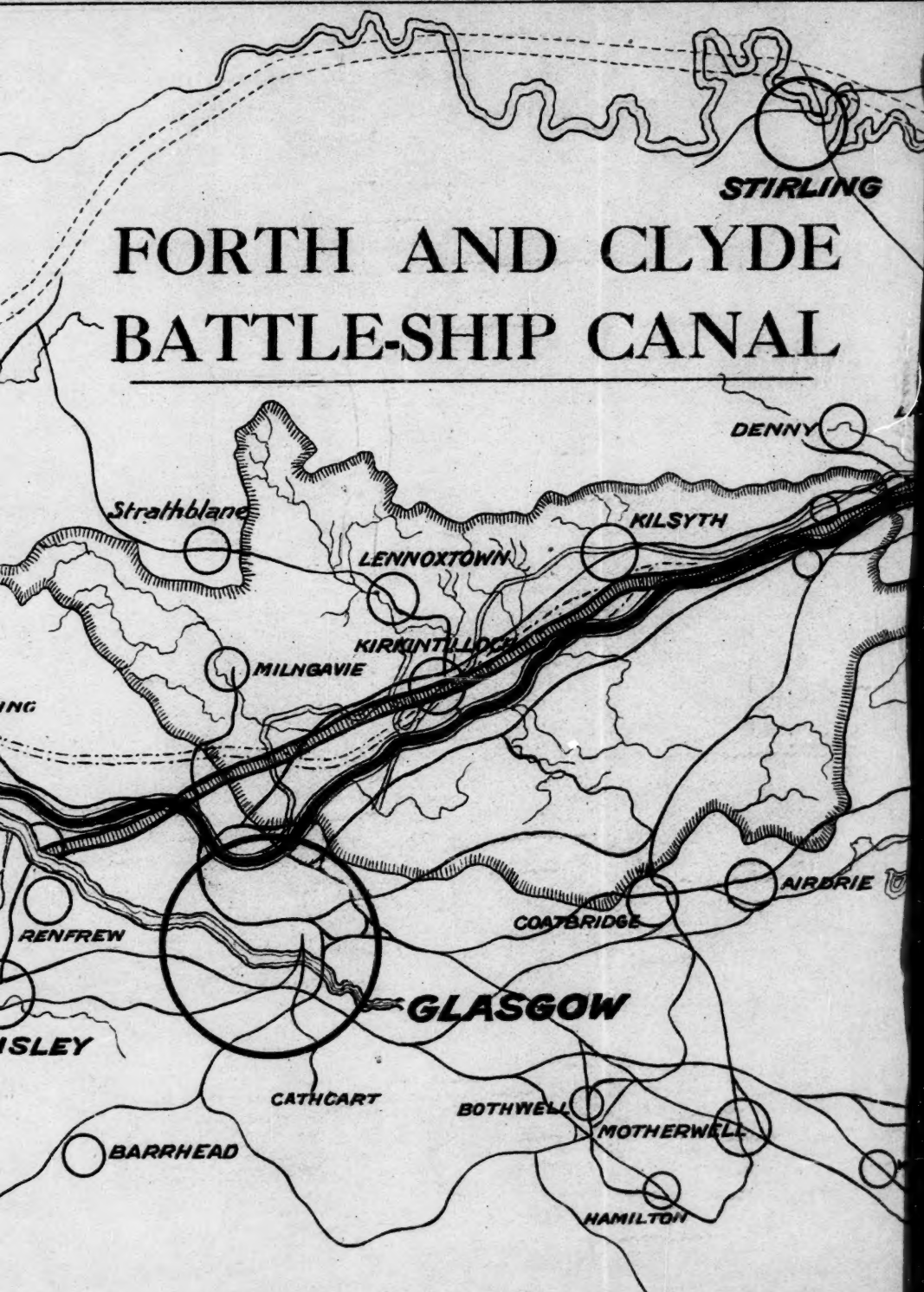
Can anyone imagine a more perfect set of conditions on which to build up a little gentle rivalry to the Kiel Canal?

The difference between the tide levels would supply unlimited power. When it is high water in the estuary of the Forth, it is approaching low water in the Clyde and *vice versa*; the difference between the levels is 14½ feet, so that if we make a free passage between the two estuaries by clearing out the old trough, there would be a strong current, running each way four times in twenty-four hours.

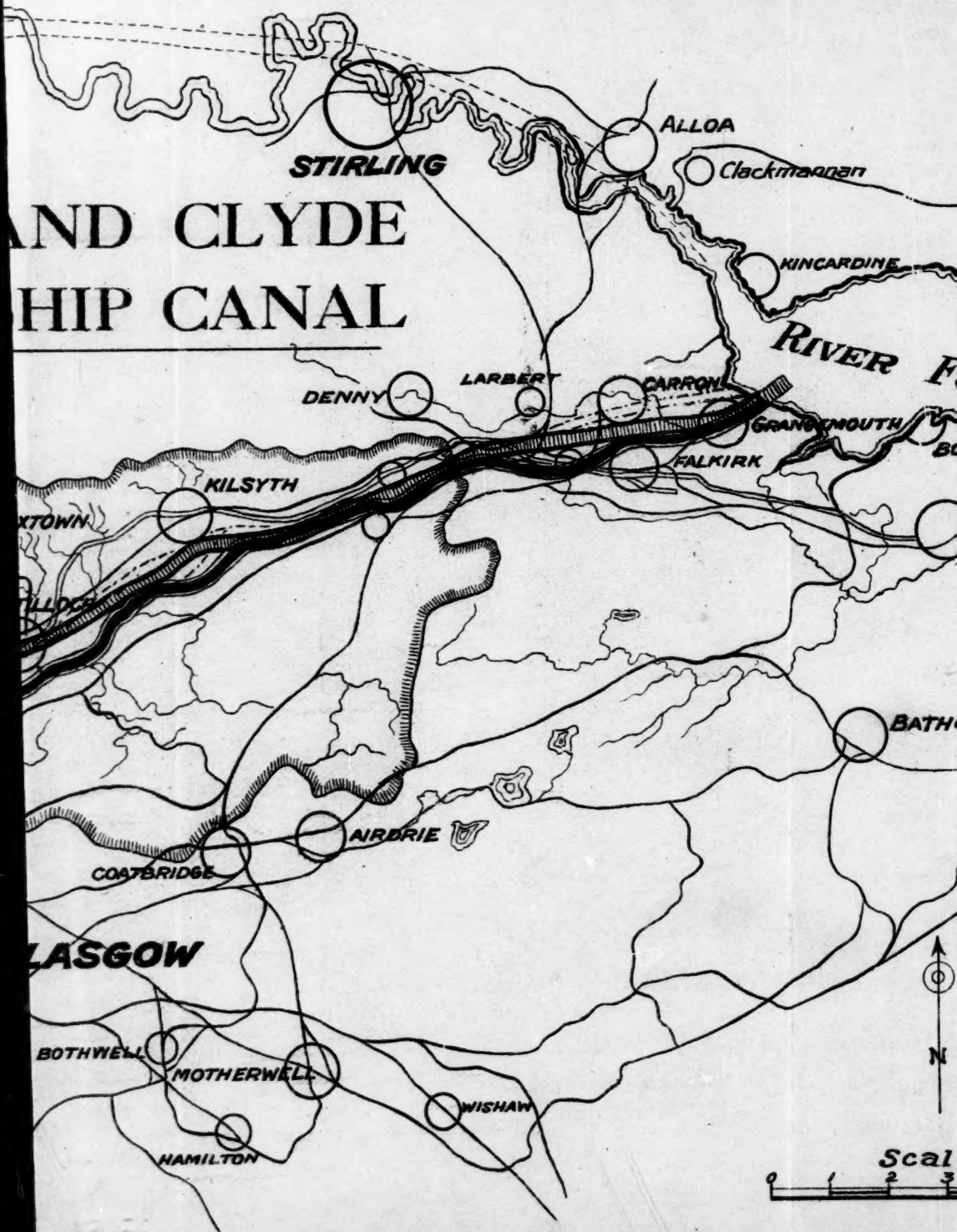
The 1890 proposal was to have twelve double locks, and it was estimated that the cost of a straight cut, with tide locks at each end, would be prohibitive; but, in considering the question from a national

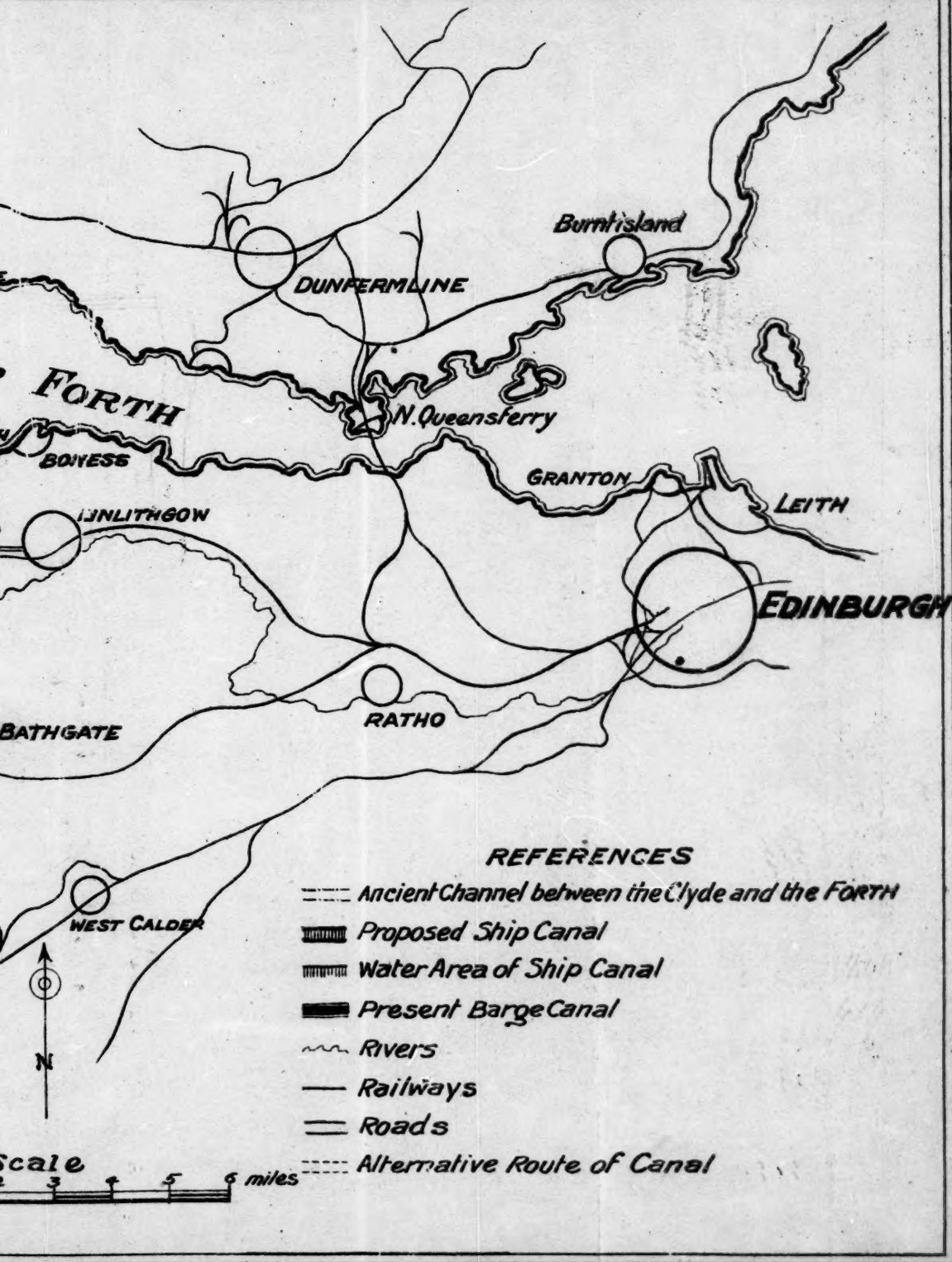


FORTH AND CLYDE BATTLE-SHIP CANAL



AND CLYDE SHIP CANAL





point of view, there is no doubt as to the advantage of a straight run through, allowing for the estimated depth of the trough. With the extraordinary improvements and economy recently made in the process of excavation, it would seem that the latter plan would be infinitely preferable, and more economical in the long run.

CUSTOMS REVENUE.

The deepening of the Clyde during the 19th century increased the Customs Revenue of Glasgow from £427 to £1,012,051 per annum.

In view of the traffic from Northern Europe, it is not unreasonable to expect that the extension of the Clyde waterway would double this revenue.

The Government, by advancing a sum equivalent to two or three years' revenue of the Clyde, at a moderate rate of interest, or by guaranteeing a dividend of $2\frac{1}{2}$ or 3 per cent. on the cost of the ship canal, would obtain a large return in the shape of increased customs, and would, at the same time, aid in the speedy completion of a strategical work of the gravest national importance.

SUMMING UP.

The Forth and Clyde Battle-ship Canal would combine in itself all the elements essential to the production of national wealth, and its chief advantages may be briefly summed up as follows:—

1. It would add another sea channel, and extend the coast-line through one of the principal industrial centres.
2. It would unite, at the most suitable point, the two seas most frequented by national commerce.
3. It would avoid the loss of life and property inseparable from the North and South routes.
4. It would reduce, by hundreds of miles, the distance between all the great shipping ports on the East and West coasts.
5. It would provide extensive harbour accommodation on important trade routes.
6. It would be of inestimable service in the protection of the national trade in the event of war.
7. It would enable men-of-war, ocean-going steamers, and coasting vessels to coal directly at the source of supply.
8. It would more than double the mobility of our fleet, giving us a power of concentration in the Atlantic or North Sea, which would be denied to our opponents, and be of inestimable advantage to us in reference to the success of any operation we had taken in hand.

ALTERNATIVE ROUTE, VIA LOCH LOMOND.

Mr. David Alan Stevenson, B.Sc., F.R.S.E., etc., has surveyed and reported upon an alternative route, and contributed a paper on the scheme to the International Congress, held at Manchester, 1890, and in 1903 made a complete and detailed survey of the Loch Lomond route, with locks 900 feet long and 100 feet wide, with a depth of 35 feet on the sill. This increase in the size increases the estimate

to £17,000,000, but it provides for the largest battle-ships, and has only two locks, one at either end.

The traffic would pass to the sea *viâ* Tarbert and Loch Long, thus opening up a possibility of using Loch Lomond as the Scottish dockyard instead of Rosyth, our fleet being ready to emerge on either coast at short notice.

For the purposes of my contention to-day, either route would suit equally well, so long as we have a rapid transport of our battle force. (December 9th, 1907. Now convinced Loch Lomond only route practicable.)

The Loch Lomond route would escape the crowded local traffic on the Clyde.

I venture to hope that I have produced sufficient evidence as to the necessity of the Forth and Clyde Canal in the commercial and national interests, in the strategical improvement in the North Sea, and the prevention of the 1910 Invasion.

THE CHANNEL TUBES. GREAT NATIONAL ADVANTAGES.

To my mind, however, there is a question of even greater importance to the national immunity from invasion now before the public, and that is the under-sea connection of the hinterland of Dover with Sangatte, by tube railway.

The Dover-Sangatte tubes will give us all the advantages of railway communication, preserve our silver streak and sea girdle, and enable us to clasp hands under the sea with France.

I have no wish to deal with the aspirations of financiers, or the question of profits, though I have no doubt that the scheme will pay commercially; but in this undertaking I see clearly a greater interchange of mutual support between the French and British nations, on the broad ground of statesmanship, as applied to permanent national interests and possible strategical contingencies of vital importance to our friendly neighbours, and to our Island Home, especially in the event of war with another Continental Power.

The controversy which has been raised with reference to the strategic points connected with the project to unite Dover and Sangatte by tube railway, seems to hover round four questions:—

1. The feasibility of blocking or destroying the tubes at will.
2. The improbable contingency of an opponent capturing by raid the Dover end, so as to come and go at will.
3. The possibility of our neighbours being at war with a Continental Power, who would seize and use the tubes to invade Great Britain.
4. The conscription bogie.

These I gather from recent correspondence and articles in the Press to be the only objections raised by the opponents of this most desirable undertaking. Anyone who believes that the tubes could be captured under the conditions suggested, must be of a peculiarly sanguine temperament.

I only wish it were possible to put the authors of these various proposals in a position to carry out their notions.

It is, moreover, ridiculous to suggest that our friendly neighbours at the other end of the tubes are so anxious to invade us.

What on earth would they do with us if they succeeded? A nice little white elephant we should prove!

THE STRATEGICAL POSITION.

How can we further improve the strategical position in the North Sea?

Equal in importance to the cutting of the Forth and Clyde Battle-ship Canal, is the tube route from Dover to Sangatte—a route which, as long as peace and a happy entente continue, would facilitate and greatly increase the friendly relations between the two great countries it connects, and make visits to any part of the Continent safe, comfortable, and expeditious; while it would be a god-send to invalids, who could travel from Charing Cross or Victoria to the South of France, Italy, or elsewhere without being disturbed in their compartments.

But in addition to these not-to-be-despised benefits to the community, there would be an incredible increase in our immunity from invasion.

Take, for example, the problematical Invasion of 1910, as graphically described in the *Daily Mail* and published volumes.

Would the nation, which, in this case, is made the invader, have been so keen to attack in the North, if we had been in a position to retaliate by combining with a friendly Power through the Dover-Sangatte tubes, without convoy or covering ships, and so get on his flank while his main body was from home? You have only to study the coast line from the northern bank of the Thames to Peterhead, to see how vitally important is an undertaking which adds in the slightest degree to the strength of the strategic position in the North Sea—the real invasion danger district. It has always been our policy to attack, on the declaration of war, and I hope it may ever be so. It is our most reliable, indeed, our only sure, defence; but we must have power to get at will from one sea to the other, or, under sea, from one land to the other, as well as absolutely certain means of cutting those communications when it becomes our policy to do so. That is strategy!

I would here quote from a very clever opinion, recently published by General Sir W. Butler, where he deals with the question of bogeys, and "gives the instance of the opposition to the line from London to Portsmouth by the great *Duke* himself," who declared the proposed railroad would "dangerously facilitate the movement" of a French Army upon the British capital.

And again, in the sixties, the "Suez Canal." "What!" cried the prophets of pessimism, "cut the isthmus of Suez and enable a ship to pass from Mediterranean to the Red Sea and good-bye to British supremacy in the East!" etc., etc.

And again, John Bright, speaking at Kensington Town Hall in 1883:—"A great deal has been said about our being surrounded by water. Well, I daresay that has its advantages, but it is a great mistake to suppose that our being surrounded with water has kept us at peace!" Camden, the historian, wrote 300 years ago:—

"The British and the Gaulish shores,
Nature at distance keeps through many an age,
Lest the two lines each other should engage.

"Camden had an idea that the silver streak between France and England was of great reason in keeping us at peace. If Camden had lived till now he would have known that the greater portion of the time from his death to our lifetime was a period when we were almost incessantly at war with France—that, in fact, our being surrounded with water has not kept us at peace, and I believe historically, it is true, that during that time France and England have spent more years in war than any other two countries of the Continent of Europe. I merely mention this for the sake of showing that there is something else besides the silver streak which is necessary to preserve peace; and I venture to make one further observation with regard to steamboats.

"During the period when steamboat services were first established in the Channel, all the alarmists said: 'With steamboats crossing the Channel, what confidence have we that we shall not be invaded by some European Power?' Now, I beg to observe that since the first steamboat crossed the Channel some 60 or 70 years ago, there has been a more perpetual peace between France and England than there had been for centuries before. I venture to say further, that since the improved commercial relations between the two countries of the last 23 years there has been a more cordial feeling between the peoples of England and France than had existed during those preceding centuries, and I venture to foretell, that, be it by steamboats, be it by commercial relations, or be it by a Channel Tunnel, be it anything which will bring the peoples of the Continent into constant communication with the people of this country, that will be much more likely to preserve peace than any of those strange notions that peace is to be preserved by our being kept separate from them.

"Whenever the engineers declare it to be possible, and capitalists think it wise. I shall view the prospect of the Channel Tunnel with the greatest equanimity!

"I recollect that when the Suez Canal was first proposed, it was denounced by a powerful Prime Minister, and all the Chambers of Commerce which had been in favour of it till that moment shut their mouths, and English capital was not contributed, the whole affair being handed over to the French. I hope that this question, considering its importance, will have a calm consideration on the part of the Government, of Parliament, and of the people, and that what is for the true interests of both nations—for that which is good for one will be good for both—will be done. The commercial, manufacturing, mercantile, and maritime interests of the country must be taken into consideration, for they are not to be sacrificed to the idea that it is impossible for greater communication to take place between France and England without danger. Let us in a great question of this kind act coolly, and not under the influence of passion or panic, and then our children will not have anything to regret in the result of our deliberation."

That is the strongest evidence in favour of the tube scheme from a Statesman whose life was devoted to the ideal of universal peace.

HOW THE NAVY WILL BENEFIT.

How, we may well ask, can the Dover and Sangatte Tube Railway affect the Navy? One thing is clear from the outset. It cannot add

to the strain of the Navy, and, under many conditions, it would greatly assist the Navy in respect of:—

1. Conduct of troops to friendly Power.
2. Victuals without convoy.
3. Passage of foreign friendly reinforcements, leaving the Navy to its own business of keeping the opponents in his ports, thus protecting our trade; the destruction of any portion who put to sea, and the capture of his lines of steamers, together with the ruin of his trade.

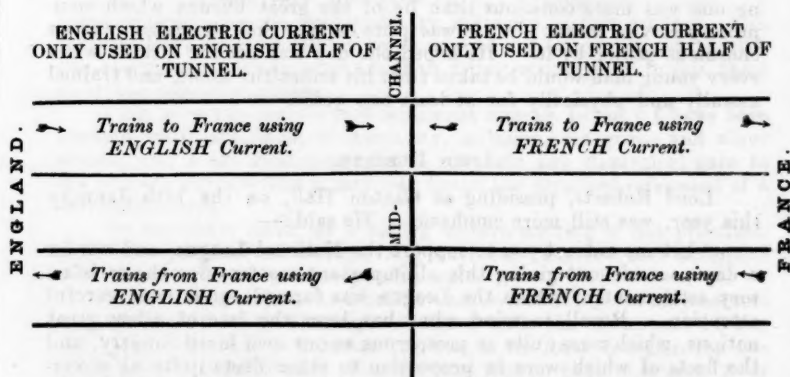
By the time the tube railway is completed, Dover will be one of our strongest naval centres, and the raider, who is to "surprise the citadel in a fog," would get a very warm reception from the defenders, both naval and military. Indeed, it may be doubted whether he would ever go back to boast of his exploits.

What is the difference between the desirability of the scheme in 1880 and now? The great difference—indeed, the whole difference—is due, not so much to the growth of the friendship between our near neighbours and ourselves as to the growth of the sea power of the 1910 invader. If the "blue funkens" want a peg upon which to hang their fears, or the bogie mongers want a real live bogie, let them at least look out on the correct bearing, and take steps accordingly. And again electric traction has completely reversed the danger conditions. We have only got to cut off the current, or cut the wire, and nothing can come through.

ELECTRIC TRACTION AND VENTILATION.

The engineering problem has been revolutionised and the military objections removed by the introduction of electric traction, as shown in the following diagram. It will be seen that no train can pass the

PROPOSED SYSTEM OF ELECTRIC TRACTION.



No train can pass the middle point unless hauled by the power of the country to which it is proceeding. The generators on either side will be at such a distance from the entrances to the Tunnel as to be absolutely safe from attack. The power can be instantly stopped, the wires cut, and, if necessary, the generating plant destroyed.

centre of the tunnel unless hauled by the power of the country to which it is proceeding; and also by the gigantic strides that have been made in tube railway ventilation, which can be tested by anyone who uses the numerous existing tubes which honeycomb London.

You pass twice under the Thames in going from the City to Charing Cross without even being aware of it.

The generating stations may be in the hinterland; for instance, at Aldershot, Salisbury Plain, or, in fact, anywhere you please! And not only can the current be switched off at a moment's notice, but the connecting wires can be cut at places known only to the Government and the company.

All idea of pressing buttons for explosives, sluice valves for flooding, etc., has completely disappeared, and you have only to cut off the ventilation and traction and drop a curtain at our exit end to render it impossible for any train, or living being, to enter the tunnel, much less pass the middle point.

THE CONSCRIPTION BOGEY.

The conscription bogey has been dragged into the alarm camp, and worked for all it is worth; but these tubes, properly safeguarded, will not necessitate the addition of a single man to the Army, by conscription or otherwise. If they wake the country up to the better encouragement of the Militia and the Volunteers, and to the proper equipment and training of a sufficient number of army corps, either for the purposes of attack or defence, and accentuate the principle of universal naval and military training, as aimed at by the National Service League, they will, at least, have had one beneficial effect for which every true Briton will be grateful.

LORD WOLSELEY.

Lord Wolseley, on 25th January, 1889, at Birmingham, said that no one was more conscious than he of the great burden which compulsory service meant; but it was quite certain that the nation was an enormous gainer by it. He hoped the day was not far distant when every young man would be taken from his unhealthv home, and trained morally and physically for at least two years.

LORD ROBERTS.

Lord Roberts, presiding at Caxton Hall, on the 14th January this year, was still more emphatic. He said:—

"Let me entreat you to support the National League, and not let a day pass without giving this all-important matter—for the satisfactory settlement of which the League was formed—your most careful attention. Recall to mind what has been the fate of other great nations, which were quite as prosperous as our own loved country, and the fleets of which were in proportion to other fleets quite as powerful as ours is to-day; and do not rest until you get the people to take up in earnest the question of our land forces, and to insist upon their being placed in such a condition as will enable them to secure the peace and safety not only of this country but of the whole Empire."

So you see that the conscription bogey so insisted on in the *Times*, is really one of the principal arguments in favour of the Dover-Sangatte Tubes.

If they lead to better organisation and augmented training of our land forces, the tubes would be a boon to those who deplore our military weakness. It has been clearly proved by able writers over and over again that the tubes, while adding to our safety in the already-mentioned source of attack, can never in themselves be a source of danger.

The directors of the Channel Tunnel Company have stated their willingness and anxiety to safeguard the tubes by any means that may be considered necessary.

The picture on the wall shows various methods by which the tubes could be blocked or partially flooded at will. I do not assert that any of them are necessary, and I entirely disapprove of the cupola above-water idea. The "exit curtains" traction current and "air current cut-off" alone render operations through the tube impossible, unless the nations at both ends are acting in concert, and Great Britain is ten thousand times more likely to have the strategical benefit of holding both ends than any other combination of countries.

But should the conquest of the air come to pass, as predicted by the late George Griffiths in 1897, in his book, "*The Angel of the Revolution*," the tubes will be one of the very few places safe from molestation. The storing or use of explosives in or near the tubes is absolutely unnecessary, and so far as I am aware it has not been proposed by the authorities—certainly not by the Board of Directors. The stoppage of the fresh-air current, and the temporary disablement of the generators, by means of a short circuit, are the most simple and complete certainty yet suggested. To sum up, it can, without a shadow of a doubt, be proved that the tubes can be rendered absolutely safe in peace and instantaneously put out of use when desirable.

SENTIMENT.

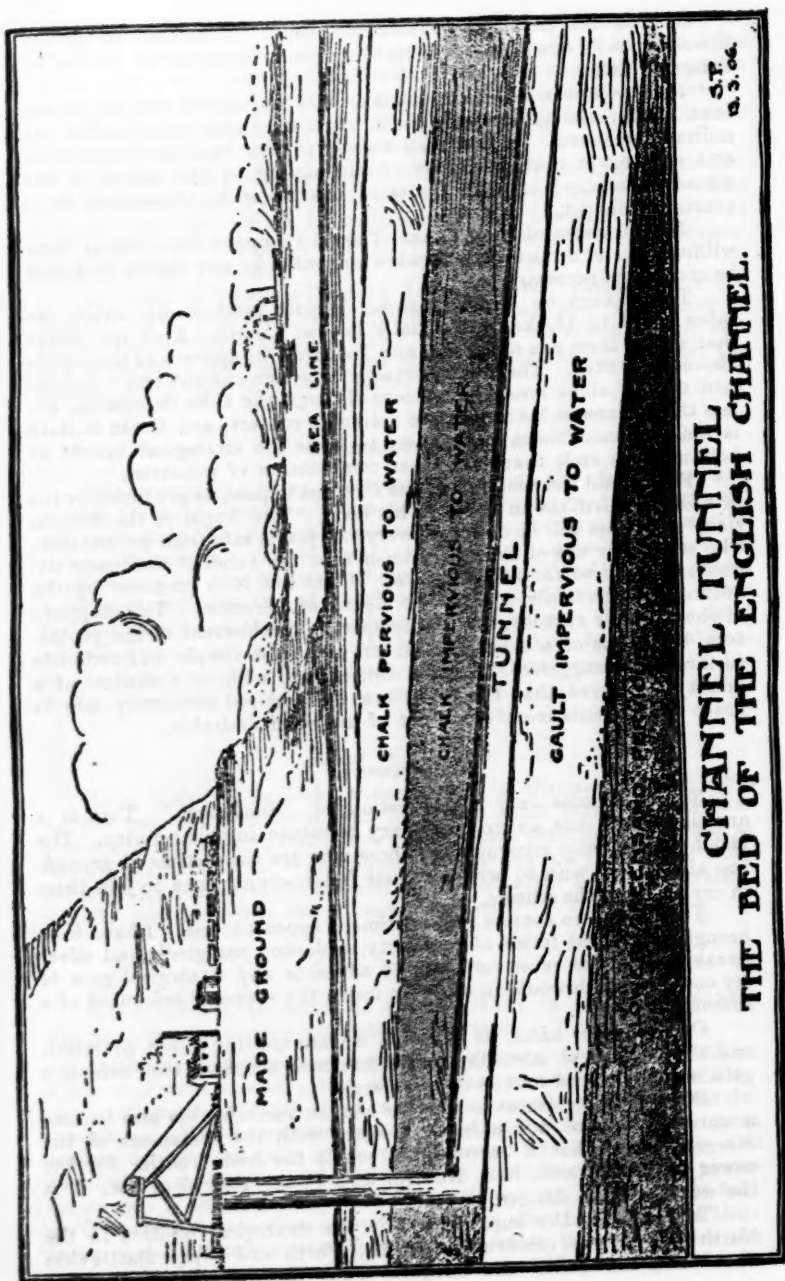
There remains only the question of "Sentiment." This is a question which has an extraordinary influence in this country. The fact has been fully recognised by those who are the victims of groundless alarm, and wish to persuade their fellow countrymen to join them in crying down the scheme.

I am bound to confess that sentiment appeals to me. I have been brought up in the fetish of insularity, isolation, sea girdle and silver streak; and I am most reluctant to advocate any strategical gain to my country which would in any way lessen the supposed safeguard of a surrounding sea.

On the other hand, as a nation we are nothing if not practical, and the strategical advantages and national offensive and defensive gain must be placed on the opposite scale.

But are we certain as to whether that surrounding sea may become a curse instead of a blessing? I agree with the statement of the *Morning Post*, that a surrounding sea is the best frontier for the power that commands it. But for the Power that does not, it is the worst possible danger.

To my mind the improvement in the strategical position in the North Sea by the construction of the Forth and Clyde Battleship Canal and the Dover and Sangatte Tube Railway, in reference to



the growing fleet of the possible invader, far outweighs the sentimental objections, and I maintain that neither of these projects affects our insularity or isolation in the slightest degree, much less our national safety.

After the kindly reception given to the tube by our French friends, it would, I contend, be ungracious and a heavy blow to our national pride if we decline to carry out the scheme *because we are afraid!*

I have only to add my earnest hope and sincere belief that the tubes may result in a permanent benefit to the intercourse between nations, and to the security of our Empire; consequently, to the peace and happiness of the world.

Mr. FRANCIS FOX, M.Inst.C.E. :—Perhaps you will allow me to say a few words on this paper from an engineering point of view. Having spent something like thirty years of my life in connection with underground work I have naturally studied the question of the Channel Tunnel in its various aspects. In connection with the mode of locomotion I do not think I can do better than to refer to an incident that occurred some twenty years ago at Liverpool when our present King, who was then the Prince of Wales, was coming to open the Mersey Tunnel. The ventilation in that tunnel is effected by fans, and orders were given that the fans were to be set running several days in advance of the Prince's arrival. Unfortunately, as invariably happens, delay occurred and the fans were not started until a week before his arrival. A locomotive with steam up happened to go down into the tunnel, the driver thinking that the fans had been started, and within half-an-hour every soul in the tunnel had to clear out. The smoke was so thick that you could not see your hand before your face, and the atmosphere got into such a state of asphyxiation that anybody that remained in the tunnel would have been suffocated. Fortunately we got everything right in time so that His Royal Highness did not suffer any inconvenience, but that just shows how easily a tunnel of this kind can be rendered absolutely impassable. You have only to stop the ventilating apparatus and no living creature can go through. Another point with regard to the Channel Tunnel is, as the Admiral has pointed out, that the traffic to the middle of the Tunnel and back again would be worked by a generating station on the English shore; and if that generating station is in the hands of the people on this side and we do not desire to send any traffic through, no trains could ever traverse the tunnel if the French or anybody else desired to prevent it. With regard to the question of other safeguards, such as the door which the Admiral has suggested, they all hinge, of course, upon the possibility of the prevention of treachery. It is not for me as an engineer to deal with that, except just to say in passing that I have too strong a confidence in our military officers and our men ever to believe in such a thing as treachery existing in a fort, and certainly not in three forts simultaneously. Therefore I think we may dismiss that entirely from our minds. I should like to say one word about the commercial question. In connection with my work in the Simplon Tunnel I had very frequently to go abroad, and I was anxious to get some good orders for England for some pumping machinery required on the Continent, but owing to our insularity and isolation, stuck in the corner of Europe as we are out in the Atlantic, they would not trouble about the order, which unfortunately went to the local manufacturers. I believe if this tunnel is constructed it will give such an incentive to our commercial relations that we can really have no conception of the enormous development

of commerce that will result. I have been in France lately and have come in contact with one or more French Naval officers, and they said to me that if only the tunnel were made it would mean that England would recover her trans-Atlantic passenger traffic, because no one would think of embarking at Hamburg, Antwerp, Cherbourg, and other places if they could go by land to Liverpool and so get the shortest cut across the ocean. The people of France have such an inherent dislike to the English Channel that nothing will induce them to go upon it if they can avoid it. They went further, and said the first thing that would happen as soon as the Channel Tunnel was completed would be the creation of a large, commercial port at Dover, or if Dover does not like it at Folkestone, which would become the distributing centre for goods over all the northern portion of Europe. I believe that that would prove to be the case, and that the construction of a tunnel would give the necessary fillip to our trade which everybody looking at the statistics knows that we badly need. We used to lead in the manufacture of iron, steel and other things, but we are now taking a secondary place, and unless something is done we are bound to go down. I believe this tunnel will be the solution to a very great extent of the difficulty that arises at the present time. The fear which has been expressed by some people that if the tunnel is created we shall be no longer an island, is, as the Admiral says, a bogey. We do not call an island less an island because it has a bridge leading to it; we shall remain an island, but with the advantage of not being isolated. We can, however, cut the link which would connect us with the Continent whenever we like, but the creation of the link would, I believe, enormously develop the commercial and passenger traffic between the two countries. So far as engineering questions are concerned the facilities for blocking, and, if necessary, destroying the tunnel are innumerable, and I do not think the slightest importance need be attached to the subject.

THE CHAIRMAN (the Right Hon. Sir J. R. Colomb, P.G., K.C.M.G.) :—The Admiral is anxious that Mr. Douglas should make some remarks, and I will call upon him at the request of the gallant Admiral, because he has surveyed the canal in Scotland and Admiral Campbell is anxious that he should make a statement with regard to the engineering features of the scheme.

Mr. W. T. DOUGLASS, M.Inst.C.E. :—I think if any ladies and gentlemen here present had to undertake a sea voyage from the east coast of England to the east coast of Ireland, say Belfast, they would much prefer going *via* the canal to going round by way of the Skerries or Land's End. About the year 1904 I was asked to consider the matter of cutting a canal between the Forth and the Clyde, and to consider it from a national as well as an international standpoint. After making a survey of the country lying between the Forth and the Clyde, I prepared a report, with plans and estimates. The section of the canal would have a bottom width as proposed by myself of about 130 feet and a depth of 30 feet. The proposition was to start at Grangemouth, going along the north bank of the Carron up the Bonny River to Bonnybridge, thence, in a line parallel to the present Forth and Clyde Canal, to Kirkintilloch, and from Kirkintilloch down the valley of the Kelvin and across to Yoker Dock. The length of that canal as surveyed would be 29½ miles. The scheme provided an entrance lock at Grangemouth and a lift of three locks about seven miles therefrom. Then 1½ miles further on there would be three more locks, which would bring you to the summit level of 110 feet, with a section at this level over

18 miles in length. Six descending locks and a cutting about 1½ miles in length would end the navigation at Yoker on the north bank of the Clyde. The cost of the scheme was very carefully gone into, and was estimated at £10,000,000, which would cover all Parliamentary engineering, railway diversion and other expenses. The proposed canal certainly passes through a very favourable neighbourhood, because there are coal mines on either side, and there is plenty of room for development.

Commander W. F. CABORNE, C.B., R.N.R. :—I think the gallant lecturer has made out an exceedingly good case in favour of the "Forth and Clyde Battle-ship Canal" from a strategic point of view, but its commercial success would entirely depend upon whether the time and steaming distance saved by various classes of steamers would be more than equivalent in value to the transit dues that would necessarily be charged them in order that a satisfactory dividend might be earned. With regard to the Channel Tunnel, I am still an unbeliever. Setting aside military considerations, it is certain that it would materially interfere with the prosperity of our mercantile marine, which has a large carrying trade with France. Moreover, I greatly fear that much cheap produce would be dumped into this country through it at preferential rates, to the detriment of farmers and others who already have as much as they can do to make both ends meet.

Captain CHAS. SLACK :—I regard this project of a Channel Tunnel as simply one inviting danger. We are all right at present, and why, therefore, should we run into dangers that we know not of? There has been no voice of public opinion given in favour of the scheme; in fact, I see by the papers that even Calais and Boulogne are objecting to it. The project is simply being run by engineers, backed up by financiers. The amusing side of the undertaking is this, that while we hear of its advantages, we hear at the same time of ever so many means that can be employed for its destruction. This I regard as a most amusing feature in the promotion of the company. I hope that whenever the prospectus of the company is brought out the shareholders will be enlightened as to the way in which their property can be destroyed, because that is a very important item for their consideration. From one cause or another the tunnel may be blown up, and one writer has gone so far as to say that a few shovelfuls of sulphur would be sufficient to destroy it. I hope the shovels and the sulphur will be ready at the proper time. I regard the project simply as a leap in the dark. Any number of complications may arise through it. We all know the scare that was caused with regard to the Dogger Bank incident. In the same way some subordinate might think that the time was ripe for destroying the tunnel, and adopt certain of the measures which have been laid before us for its destruction, but it might only be a scare. But, think of the ridiculous position that we should occupy after the tunnel had been, we will say, partially destroyed, and think how we should look in the eyes of foreigners when it came out that there was no necessity for blowing the tunnel up after all; that it was simply a scare! Besides, who is to pay for the damage? We hear nothing about that, and the lecturer said nothing about it. The question I particularly desire to ask is: Why should not the ingenuity which has been displayed by the promoters of this project be applied to the inauguration of a service of train ferries? Train ferries are used in many parts of North America and in the Baltic. The train comes down to the steamer, the lines connect, and there is no dislocation of passengers or goods; in fact, anyone by con-

sulting a Continental "Bradshaw" can see that there is a train service night and day between Berlin and Copenhagen, which occupies nine hours, without any dislocation of either passenger or goods' traffic. These train ferries are now being suggested for many places. For instance, it is proposed to connect Newfoundland by means of a train ferry with Cape Brecon, a distance of eighty miles. Surely if they can carry a train on board a steamer for eighty miles, they can carry it across the Straits of Dover without any difficulty. Another train ferry service has also been proposed between Larne, in Ireland, and the shores of Scotland. I have just received a paper from America, *The Boston Transcript*, from which I should like to read you a short extract. It reads thus: "For an unarmed island like England, enjoying naval supremacy, to deliberately connect herself by a railway with a continent bristling with army corps, seems to us to savour of dementia, all the more as they are governed by politicians who notoriously and systematically trifle with the problems of national defence." I think the lecturer, if I may say so, has not made out a good case; and looking at it from a legal point of view, speaking in legal phraseology, I would say that I think the defendants have the verdict in their favour.

Mr. R. J. B. HOWARD:—I feel somewhat strongly about this question. It has been brought forward in such detail by such eminent men—men whom I have been taught to look up to as the real defence of the nation—and yet I cannot find any satisfaction in their arguments. That is my only apology for speaking to you to-day. There was an old term used at one time, "security." Is not that what we have to think of first of all? Will this tunnel, or will it not, jeopardise the security of Great Britain? If Great Britain goes, the Empire goes. I know what the feeling of my own colony, Canada, is about it. It is most strong against any scheme that has been presented hitherto. The real question is whether it would be an advantage for the good relations of the Empire, of which Great Britain is, and I hope always will be, the heart, the centre and the head, to have such a tunnel. Nobody disputes the great advantage, I understand, of the Forth and Clyde Battle-ship Canal; but when we come to the question of the Channel Tunnel that is quite another story. Nobody has mentioned the arguments which have been adduced by General Maurice in regard to this matter. General Maurice pointed out that there is no security in declarations or anything of that kind. You all remember the old saying, "quis custodiet ipsos custodes." All the arrangements for the security of the tunnel depend upon the men who are employed, and if anything goes wrong with those men the whole of our security is gone. The Germans do not adopt that idea. They go on the principle not merely of securing that the men shall be of the best in every way, but they also take every precaution as far as they can in advance, and they do not take chances. The Channel Tunnel, as has been explained to us, may be temporarily blocked for good reasons, but, on the other hand, it may be blocked owing to a panic, or anything of that kind. It has also been said that treachery is impossible, or so far from practical politics that it may be left out of account. I do not think that is the teaching of history. Then some question was raised that it would have the effect of advancing the trade of the manufacturers of this country. I cannot see that the strategical question of the advantage of the Channel Tunnel has anything to do with the question of manufacturers. It may be profitable to a certain number, I can well believe, but I do not think that, without a multiplication of tubes so that we

have a constant stream of traffic backwards and forwards, you would get such an advantage as has been claimed. In my opinion water traffic will be just as advantageous in that respect. It all seems to me to go back to a question of what we believe and what we know. What we know is what has happened in the past, and what we believe is what some of us hope will come in the future. Therefore, in the meantime I cannot but think it would be very unwise to sacrifice the advantages that we have at present. That need not in any way interfere with the good feeling that at present exists between the two nations. Some people seem to think that by our saying, "No, we think it is inconvenient to have a Channel Tunnel," that thereby we shall quarrel with France. I do not think that is so. It is a question of belief, and I cannot believe it, because I have a good many friends in France, and I know that is not their opinion. Surely that is one of those hypothetical questions which might be left open. As to the positive risks that will be run by establishing a communication such as has been proposed, I know what the gallant Admiral said about the possibility of our being able to sink, I presume, by battle-ships, the viaduct mentioned, but that all depends upon everything going right when you want it to be right. At the present time we have means of defence and protection, and also have the power in our hands of developing, if we want to do so, the means of transit across the Channel without running any such risk as that proposed by the Channel Tunnel.

Admiral the Hon. Sir EDMUND R. FREMANTLE, G.C.B., C.M.G., Rear-Admiral of the United Kingdom:—I shall only detain you with a very few words, but I wish to oppose the Channel Tunnel completely. My opposition to it is perhaps born to some extent, and it may be prejudiced, but I think my prejudice is very well founded. This Empire has got great by the insular position of the British Isles, whereby its maritime interests have been developed. Our insular position and our maritime interests are the two great assets upon which we depend, and I think we shall make a great mistake if we reduce our dependence on our maritime power. Is it nothing that everybody who leaves these islands and wants to go abroad is obliged to see the sea? It brings it home to him and her—and it is very important that it should be brought home to her as well as to him—that we are absolutely dependent upon sea power, and that the position of this country depends upon its shipping. People are so very oblivious of everything except what is actually before their eyes. If people crossed by means of the Channel Tunnel, and went, say, to Paris, Monte Carlo or any other place, they would quite forget that they were living in an island, and would never give a thought to our sea power, which has given us our pre-eminent British Empire. If the world was turned topsy-turvy, if we had conscription in this country, and had two or three million men under arms, and if we were a minor maritime power, it would be a very fine thing to have a Channel Tunnel; but as things are differently situated, I think we have a right to oppose it. There is another point which has struck me, which I think may be worthy of some consideration, namely, that in the event of this country conducting an unsuccessful war, might not one of the terms of the enemy be that we should give up the entrances of the Channel Tunnel? If any Power once induced us to give way to those conditions (and after all we do not know whether it would not be just as well to give those terms as to pay five hundred million of ransom) the whole of our insular position would, of course, be gone. I have also gone into the question of train ferries, and I think that matter should receive more attention, because if there is really a demand for better com-

munication with the Continent, and for people to be able to cross the Channel without having to leave their carriages, I do not see why such a scheme should not be adopted. We know that there are difficulties owing to the rise and fall of the tide, but those difficulties have been overcome in other places, and there can be no insuperable difficulty, I should think, in having a channel ferry. It is supposed to cost about one-twentieth or one-sixteenth, or something of that sort, of what the Channel Tunnel would cost, and it is not subject to any of the other objections. We must recollect that our great poet spoke of the Channel as being "A moat defensive to a house." It was so, it is so, and I hope it will ever remain so. I should like to say one word about the ship canal in the North. I know it is feasible. I know that my friend, Sir John Jackson, who has built the great works at Plymouth, which are just about to be opened, and who had a great deal to do with the Manchester Ship Canal, is very keen upon it. Engineers naturally are very keen upon a big job, especially if they think they may have a good part in the carrying of it out. But I know he is very keen about it, and I have not the slightest doubt of its advantage. There may be a question as to its paying the shareholders, but there can, I think, be no question as to its advantage from a commercial point of view, although there is a question as to the advantage from a commercial point of view of the Channel Tunnel to this country. I believe myself that the Channel Tunnel would be a commercial advantage to the people who made it, but I do not know whether it would pay this country to make it. That is another question. I do not myself attach the very greatest importance to having the defences which have been mentioned, or the question of the danger of an enemy invading us by the Channel Tunnel. But I think there is one thing we ought to consider, namely, that if we had one Channel Tunnel and it was a great success, we might have two or three other Channel tunnels formed. With the first one we should take some precautions—(although, after all, we do not want to add to the precautions we have to take in this country)—but if we had a second one we should take a great many less precautions, and if we had a third one we should take none at all. I should, therefore, be very much disinclined to see a Channel Tunnel. I hope, whether from prejudice, or whether from the reasons that I have endeavoured to state, or from military reasons, or from whatever cause, it will not be carried out, and that we shall never have an opportunity of finding out whether it is a financial success or not.

Colonel the Right Hon. Sir JOHN H. A. MACDONALD, K.C.B. :—When I heard that this lecture was to be upon a proposal for constructing the Forth and Clyde Canal, I rejoiced greatly; but when I came to read the latter half of the title, I had very much the opposite to a feeling of rejoicing. The establishment of a proper channel for ships from one ocean to another, which we should have if we had the Forth and Clyde Canal sufficiently large to carry large ships, would undoubtedly be an enormous advantage, both commercially and from a national defence point of view. But I cannot understand the gallant Admiral who has given us this lecture, proposing a ship canal as a great assistance to prevent invasion and to protect us if we were attacked, because the whole of his reasoning seems to be that we should proceed upon the footing that nobody will ever think of attacking us, that all the other nations are extremely friendly to us, and that we can trust them implicitly. I have no doubt whatever that they are friendly—some of them; I have no doubt that some of them are perfectly friendly. But as the last speaker has said, we know

how clearly the events of history teach us that it does not do to trust in looking after your own national affairs to other people remaining friendly, who may have come to have some spite or envy against you. It has been suggested by the lecturer that if an enemy did come across to this country he would be very glad to get away from it again because we should be a sort of white elephant to him. I think, however, the opinion of the late Emperor Napoleon is of great importance in that connection. He thought it would be a very important thing to get possession of this country, and the country has not less wealth in it now than it had then, or less importance in a question of influence in international affairs. I would like to make a few remarks on some of the points in the lecture, and particularly the paragraph where the lecturer says: "It is, moreover, ridiculous to suggest that our friendly neighbours at the other end of the tube are so anxious to invade us." I think that is a totally false and unreasoning way of putting the matter. I do not suppose they are anxious to invade us; but I suppose the gallant Admiral and everybody here knows perfectly well that every great power on the Continent has its schemes for that purpose, if it should think it at any time to be for the interests of its own country, or for the interests of any combination of nations formed against us. As to saying that the existence of the Channel Tunnel is not a danger because you can shut it up, that all depends on whether you have the power to shut it up. You have to hold one end of it in order to do that, and if that was taken away from you you would not be able to do so. Of course, it is not very likely that that would happen, our gallant admirals are there with their ships of war to prevent it. But, still, we must be prepared for contingencies. But on the other hand, when are you going to shut it up? Are you going to shut it up when you begin to suspect something is going wrong, or when you are certain that something has gone wrong? If you are going to do the first, what becomes of your friendly relations with the nation whom you insult by shutting up the tunnel because you happen to be suspicious? And if you wait till you are perfectly sure that the suspicion is justified, probably you will wait too long and will not get the opportunity. I am perfectly amazed that anyone should come here and quote to us as regards the defence of our country, the opinions of Mr. Bright, who was the gentleman who was always under the idea that we had only to disarm ourselves and everybody else would disarm immediately. I do not think anybody will accept that suggestion now. There is no doubt about this, that since the time of our first great Exhibition in 1851 we have seen war after war in quick succession. It was to be the harbinger of peace, so that everybody could exchange their silks and cottons and different articles of commerce in a friendly way with others, and war would be banished. Since that time there have been more bitter wars on a large scale on the Continent than ever before, and even America has not escaped. But few countries have escaped invasion by a foreign foe. Why have we not had a foe on our territory? Because before they can cross the silver streak they must meet the gallant Admiral and his companions before they reach our shore. I do not think it is just to say that because you believe other people are friendly to you now, you are not to make ready for what may happen in the future. It is suggested in one place in the lecture, rather sarcastically, that we are "blue funkens" if we object to have the Channel Tunnel made. If everybody who takes great pains to prevent his country being attacked and the women and children exposed to the horror of war, is a "blue funkens," I hope we may all be "blue funkens." Every sensible man dreads war, though he does not dread

fighting. Polonius' advice was not intended to make his son a "blue funkner." The last speaker gave us a quotation, and I think I can give you another: "When a strong man keepeth his palace, his goods are in peace." A strong man armed keeping his palace does not mean that he sits down at ease, but that he uses means to make his people strong as he is strong himself. He is not a "blue funkner," he is a man who is doing his duty. If he has not all his fortifications in order, he would still fight with the aid of those he had; but he would not consider himself a strong man in the true sense, if he did not make his house strong, and his palace safe against invasion by enemies. It is because he is ready to defend in war that his goods are in peace. And, lastly, although I am not competent to speak upon the question from a strategic point of view, or anything of that kind, I want to ask this question: Is the risk that we run only the risk of the Channel Tunnel being captured when a war is going on or about to begin? I think there is a far greater danger than that. We must all contemplate eventualities that may occur. Suppose there was a great European combination against us, and that we were brought down—we must contemplate that? No doubt we should fight to the last; no doubt we should fight until there was such exhaustion that it would be cruelty to our own people, who were not fighting men, to carry on the war any longer. What is, then, to prevent such a combination of Powers saying, "You have had your Gibraltar in the Mediterranean for a good many years. We will take care to have our Gibraltar in your country; and not only shall you pay us an enormous indemnity, but you shall give us Dover and twenty miles round as a station for the protection of our means of communication with your country." A gentleman has just whispered to me, "Like Alsace Lorraine," and that reminds me of a thing I forgot to say. What is the reason why our border has never yet been crossed since the days of William III., who came with the good will of many and not as an invader, for the mass of the nation invited him to come and to stay? We have never been invaded by anybody who came as an enemy to the country for the purpose of exacting from us a heavy indemnity, and humiliating us, and crippling our power for the future. Has it been a protection to other countries to have free communication across their borders? Was it a good protection to Austria in 1866, or to France in 1870? Would not they have been very glad to have had a Channel full of water: a national moat around the national castle? Might not it have been a great difference as to whether these wars would have taken place at all? The whole question will need a great deal more of what Mr. Haldane called "deep thinking," before this country will consent to doing anything so full of danger as the construction of this tunnel would be.

Captain W. C. M. NICHOLSON, R.N.:—Neither in England nor on the Continent, nor anywhere else in the world, do I think we ever escape from what may be called the "jumps." We have had that recently exemplified in the person of that gallant Admiral Rojdestvensky. We have had it in England in various forms, but I will only take one which I am sure everyone will thoroughly understand. Take the great Fiscal problem. We have had Free Traders, Whole-Hoggers and Half-Hoggers. That applies very much to the Channel Tunnel. We meet the men who say, "Tunnel, on no account"—Free Traders. We meet the people who say, "Tunnel, certainly; we must have the Tunnel"—Whole-Hoggers. We met the people who say, "Tunnel, yes, under certain conditions"—Half-Hoggers. I do think, in an assembly like this, we ought to try and lead

the van in clear reasoning. With regard to the case for the tunnel, is it not logical first of all to look carefully into the commercial aspect of the problem? Is there a naval, or military, or civilian gentleman present who would condemn the tunnel if, by the construction of the tunnel, we were able to increase our imports and exports by 20 millions a year? Is there anyone who would object to it if by so doing the Revenue is raised to such an extent that we are able to maintain a Navy equal to a four-Power standard? Is there anyone who would object to it if by so doing we were enabled to maintain an Army equal to the German Army. Where would our troubles on the Indian frontier be with such an Army? Gone! Nevertheless, I hear people say continually, "Tunnel? Surely not, horrible thing!" Is it not logical that first of all we should find out what commercial benefit the country will gain by a tunnel? I do not feel that, as naval and military men, we are competent to enter into every detail, but at the same time we can see little things outside the circle of Dover and Sangatte which everyone is talking of. Is it not possible that the result of the Channel Tunnel will revolutionise land transport in this kingdom? Is not that the thing which persistently is clogging the commerce in this country? What is it that prevents the Midland Counties putting a cabbage on the London market, as well as, if not before, the foreigner, or carrying our manufactured goods to the coast for transit to foreign countries at moderate prices? Land transport—our railways. Do not think I wish to abuse the railway companies. They have their expenses to pay, and they can but distribute them over the traffic. What is wanted is an increase of transport. Transport can be increased to a large extent without building a new line of railway. Will anybody say that the present railway system of England cannot pull ten times as many goods trains as are pulled over the lines at present? Not half a station distance need remain between different goods trains with proper signal boxes. Does not this all prove that the logical thing first of all is to look at the commercial value the Channel Tunnel will be to the country? Let us strive to get that point looked into first. If a Royal Commission or Select Committee is appointed, do not think that it will be wasted; do not think it is wasted if it does not come to the conclusion that it will be a commercial gain. You cannot have too many Royal Commissions or Committees, or anything else, on trade questions; you cannot look into them too much. Therefore, it will not be wasted; good will follow, even though the conclusion is arrived at that the Channel Tunnel is not to be. Should it become evident that this country will obtain great commercial advantages, we have then to balance that against any increase in defence that may be required. Does anybody imagine for a moment that an 18-foot frontier will render the defence of the United Kingdom impracticable? Then, again, there is another aspect to the question, and that is that the Channel Tunnel will probably be partially built by Frenchmen and partially by Englishmen; there will be, therefore, a certain responsibility thrown on our Government. We cannot say "We agree to it, let the French go ahead," and our company break down over their portion. No! I think it is our duty to look into the matter and see that there is stability in the Company, and that the troubles they may meet with are not insurmountable. It is not necessary at this stage to enter into details such as methods for blocking the tunnel, for which suitable methods can be easily devised. Before sitting down I would implore you to look at the scheme in a logical and not in the jumpy way into which you are at present apparently drifting, namely, "No tunnel at any price," but study the question of "A tunnel under conditions."

Colonel F. H. MAUDE, C.B., [late Commanding the Hamps. R.E. (Vols.)]:—The last speaker has almost cut the ground from under my feet at every point. I also say, let us go into the question on logical grounds and look at it under reasonable conditions. It seems to me that since 1883, when an enormous amount of literature was published in the *Nineteenth Century*, and elsewhere, on the Channel Tunnel, the introduction of electrical traction has completely changed the whole of the circumstances. I have been studying the invasion question for the last twenty-five years at least. For twenty years or more I held a very strong opinion against the Channel Tunnel scheme, but the introduction of electricity has completely converted me. The danger of such a tunnel is so absolutely insignificant compared with the dangers which already exist, that it is quite immaterial whether we have it or not. You can invade England wherever you please. Thanks to our Free Trade, which allows goods of all sorts of descriptions to come to this country under false vouchers, without any kind of inspection, which allows people, we will say, to consign cartridges¹ and other things in piano cases, as they did in the Boer War; you can plant all the ammunition and almost all the provisions you require for such an invasion wherever you like in England with perfect impunity. That being so, I do not know that we need trouble ourselves much about the tunnel. The essence of the thing is to keep our Sea power; that is the final decisive question at stake. If, as seems likely, the trade of the Atlantic tends towards the French and German ports, as it does now, if big liners are coming round to Southampton, where they are more likely to get trade than at Liverpool—if that sort of gradual movement southwards takes place, then before long the merchant fleet will shrink up, and when the merchant fleet shrinks up, the Navy will shrink up too. The end of it will be that our sea power will be gone and the Channel Tunnel will not signify in the least. If you think of the enormous pull that Liverpool has always had, because it has been practically the last convenient jumping-off stage to the continent of America, the more we can work to improve that advantage, the more we can facilitate through traffic from Europe across the Channel, the better it will be for us. That is by far the most important strategical point we have to look to at present. The Clyde Canal seems to me to be the coping stone of the whole matter. I suggest that if you combine the two, the Canal and the Tunnel, you have an almost unanswerable case, strategically. The canal facilitates the defence of the tunnel, and the tunnel ensures to us the maintenance of sea power adequate to protect it.

Mr. ARTHUR DIÓSY, F.R.G.S.:—I would like, first of all, to take up a point raised by the gallant Colonel who has just sat down, when he spoke of the great ease with which a nation that proposed to invade us could introduce ammunition and provisions surreptitiously into this country. If the gallant Colonel will arrange with a friend abroad to send him a bundle declared as cotton goods, and will ask him to put a hundred cigars and a small flask of cognac in the centre he will soon be convinced that it is not quite so easy to bring goods into this country under false descriptions as he seems to think. I am sorry that Admiral-of-the-Fleet Sir Edmund Fremantle has left, because I would have liked to join issue with him about the importance he seems to attach to the "silver streak," as a means of

¹Note.—The recent discovery by the police of a considerable consignment of cartridges (30,000) at Sunderland is sufficient proof that this risk is by no means imaginary.—F.H.M.

convincing the British nation of the necessity of sea-power. I have crossed the Channel hundreds of times, chiefly in bad weather, and I have never noticed a single Briton on board who, at the moment, seemed to be very much impressed with a sense of the importance of sea-power for the very existence of this nation. No! If you want Britons to have a sense of the all-in-all that sea-power is to us, you must teach them in the schools; you must let them see our Navy, not hiding it away; you must, for instance, let the people of the capital of the Empire occasionally see some bluejackets and marines under arms, a sight some of them never feast their eyes on in their lifetime. You must have a naval guard at the Admiralty buildings, like every other naval nation in the world has to-day, and you must not line the railings of your naval parade-grounds with corrugated iron for fear that the civil population might see the seamen at work. All this is of more importance than ten minutes of sea-sickness for convincing the nation that the Navy is all-important to us. As for the tunnel, I have been delighted to hear so many eminent authorities say to-day that it is going to be a great risk, a great danger, and a great source of anxiety to the nation. If that be so, I shall be doubly thankful if the Channel Tunnel is made. What this nation requires is a good, healthy sense of insecurity. This nation is living in a fool's paradise. Not one man out of fifty thousand in this country devotes an hour's reading a week to the condition of this country as regards its state of defence. Now, it is an axiom, and a very good one, that the chief necessity for prosperous trade, industry and navigation is a sense of absolute security. But that means a sense of *real* security, a sense founded on the accurate knowledge that your system of defence is complete, is rational, is in good working order, is sufficient and ready at any moment. Our sense of security is based on nothing of the kind, but on a mere assumption. It is based on the false principle that defence is everybody's business except one's own—that you pay your income tax, mostly unwillingly, and that then you have done with it. If we could only have a real feeling permeating the whole nation, which would lead every Briton to think as he rose in the morning that it was not, perhaps, quite so well with us as he had been thinking, that there was a possibility that something might at that moment be crawling through the tunnel that would mean war, red war within our borders—then, perchance, that Briton before he went to his business that day, to the getting of the pounds, shillings and pence which seems to be the chief aim of his existence, would very probably pause to think a little and to ask himself the question whether the most important thing in the world, our safety, was entrusted to the proper people and was being managed in the right way. When the Briton in his millions begins to ask himself that question perhaps we shall begin to see the end of "footling"; we shall begin to see things managed in this country as they are in the land to the study of which I have devoted my life—a land where they have no "piffle," but deeds, where they have no talk, but actions—a land where they really are safe, a land in which the proposal to make a tunnel from the shores of Korea, let us say, to the shores of the land I mean, that is Japan, would not be the cause of a moment's nervousness to anybody, because the Japanese are a nation of fifty millions of people who know they are strong, who have made themselves strong, and who take the very greatest care to keep themselves strong.

Admiral F. A. CLOSE:—I am not going to make a speech; I only desire to allude to two points which have not been referred to, one in favour of the tunnel and one against it. The point in favour of the tunnel, which

probably you have seen in my letter in *The Morning Post*, is that this tunnel will, to a certain extent, solve the question of food supply in time of war and prevent panic on the corn market. The other point, against the tunnel, is, why is it we have never been invaded? Is it because invasion is impossible? No. They all wish to invade us; they say, we know twenty ways of invading this country, but not one of getting out of it. If the tunnel is made, they will have a way of getting out of it.

Vice-Admiral Sir CHARLES CAMPBELL, in reply, said:—I am very much gratified that there has been so little objection taken to the tunnel at this meeting; and all the criticism directed at the paper has been raised in such a pleasant manner that really I have practically nothing to answer. The discussion was started by Commander Caborne, who, of course, I must take as a great authority on mercantile marine matters, as he has been in the mercantile marine for a good many years. As far as I could make out he based his objections entirely on the commercial aspect of the question. I will just say a word or two in reference to that, and in answer to his remarks. The tunnel will only transport passengers and merchandise requiring rapid delivery, and articles of great value, and will only be a rival to the South-Eastern and Nord steamers. The British Merchant Service will certainly retain, if it does not augment, its transporting powers. Maritime freights are much too low for the tunnel to dream of fighting against ships on the ground of cheapness. On the contrary, the tunnel will make it easy for Britain to remain the great depot of the world, which, after receiving merchandise by ship direct, as was pointed out by my friend, Mr. Francis Fox, will, owing to the tunnel, be in a position to redistribute it in small quantities to places all over the world. If being a great distributing centre does not mean trade, I do not know what does. Not only this, but picking up contracts, obtaining orders and general business will be inestimably benefited. Instead of writing, the principals would meet and settle a contract that might have been lost if conducted by post, and we should be commercially in as advantageous a position as our rivals on the Continent. The tunnel will be of enormous benefit to commercial travellers. There are commercial travellers in London who seldom go to Paris under present conditions. In that respect we are very much worse off than Germany, Spain, Austria and other countries, whose travellers can jump into a train and go to Paris or any other place, fix up a contract, and be back in town again in a day. It will place a London or a Liverpool merchant in the same position as the foreigner. For instance, if he got a train in the morning at 6 o'clock he would be in Paris or other market at noon, he would go about his business, obtain his contract and pay visits instead of having to conduct the whole thing by correspondence. What will be the result of that? The result will be that the business order that you have obtained by going to Paris through the Channel Tunnel will travel over the sea in a ship, and increase the trade of the merchant service instead of decreasing it as has been stated. I cannot see anything more clear than that. What the Channel Tunnel will do will be to give the commercial people the power of going off and getting contracts, which will be carried by the sea, so that it will immensely benefit trade instead of diminishing it. Admiral Fremantle, who, I am sorry to say, has gone, said he preferred train ferries. That is not a bad idea, and I do not see why we should not have one, but that does not prevent us having both. You can start a ferry, say next year; we want eight years at least for the tunnel. In the meantime you could run the ferry boats. I am for communication all over the world. I have not

said a word in my paper against the ferry. Have a ferry by all means, but I say that does not interfere with my great idea of the strategical advantage of the tunnel compared with the position in the North Sea. I shall go out of this room ten times more certain of the protection which is required in the North Sea. I know from reading a good many of the discussions in the German Parliament, from what the Emperor has said, and from the actual building programme that has been put before the country that the German Navy is going to try and vie with our Navy, and if it possibly can it will be the biggest naval Power in the world. That is perfectly clear, and that is my great reason for wishing to have this tunnel connection with a friendly country on the other side. Have both, ferries and a tunnel. Then Admiral Fremantle said that if we had one tunnel we might have more—I think he said, two, three or four more. It is a most extraordinary thing that this clay, or chalk clay through which the tunnel will be driven exists in the narrowest part of the Channel between Dover and Calais and nowhere else. It is a curious fact that that should be so. Geological surveys have been made and as far as we know—and I myself believe it is so—there is not another place where a second tunnel can be made, and therefore that argument absolutely falls through. I must make an apology to you because I have put a word in the paper that I do not like myself. I allude to the term “blue-funkers,” and I certainly did not intend to hurt the feelings of anyone, either in this Institution or anywhere else, by putting it in my lecture. But, at the same time, I am bound to confess that I am impressed with the idea that there is in this country what I may call a “dread-all” party. There are people who dread anything and everything. I am one of those officers who believe not only in a two-Power standard, but that we should have at least double the fleet of that great invading Power that I have been talking about, and as she persists in building her ironclads and cruisers, I am absolutely certain that the only thing for this country to do is to keep on building double the number. I will conclude my remarks by saying that, for the benefit of my country, which I love and honour, I wish to see less of the dread-all party and more “Dreadnoughts.”

The CHAIRMAN (Sir J. C. R. Colomb):—I am sure we are all indebted indeed to the gallant Admiral who had given us much interesting matter to discuss and to think over. It has been a great pleasure to most of us to hear the various views that have been put forward by the different speakers. I am in the chair to-day at the request of my gallant friend and I have greatly benefited by the discussion I have heard. I am not a partisan of the tunnel; I have not absolutely taken either side. I think the question of a tunnel is simply an economic question and a commercial question; primarily it is really a question of what is good in the economic interests of the country. I have taken a small part in differing from what I call an hysterical military school who have said, I think, very wild things against a tunnel. My view of that matter is a broad one. It is that if the great mercantile authorities and great commercial centres of the country, whose interests are concerned and who have the means of gauging the probable national consequences commercially and economically, are prepared to plunk down their money and to put it into this tunnel—because they expect to reap commercial benefit and the country reap great economic and commercial advantages—the tunnel will be made. I think it is the business and the duty of military authorities—I speak in the widest sense, embracing the Navy too—to provide the means for the protection of the material interests in this country as they find them, and if

they find to-morrow that a tunnel is to be made to meet the demands of commerce and international trade it is no use their objecting. What they have to give their minds to is the proper preparations necessary to deal with that state of things. Sir John Macdonald is a great and eminent lawyer—he is eminent in a great many things—but when he got up to speak I was in hopes that we should hear him upon one point which is a purely legal one. It is proposed that the tunnel shall be constructed twenty-four miles under the sea. Taking the three miles maritime limit on one side and the three miles on the other, we come to this position, that three-quarters of the land in which the tunnel is constructed is no man's land. I think a very nice point will arise in that connection. What courts are to have the jurisdiction in that no man's land? Of course you may say the tunnel will be divided between the two nations, but surely great complications may arise in the case, for instance, of murder or outrages as to exactly which side of the centre, in no man's land, the thing happens. Might not that lead to international disputes between international lawyers, and might not that be a source of friction? I would not have mentioned this point if it had not been for Sir John Macdonald being present, and I wonder if he could deal with it?

Colonel Sir John Macdonald :—Anybody who commits a crime on board a ship on the high seas, which are no man's water, can be tried at any port of the country that the ship belongs to when the ship arrives. In the same way in this case probably you would have some international arrangement. A fellow on a French train would be nobbled for doing it on the French train, and a fellow on an English train would be nobbled for doing it on the English train. That is the only way I can suggest; but I think a very small amount of international arrangement would meet that point.

The CHAIRMAN :—It is a very small point. I merely wanted to illustrate one peculiarity of the situation. Sir John Macdonald does not settle my mind whether the application of existing international law on the surface of the sea must necessarily apply to land below the surface of the sea. Passing to a more serious aspect of the question, I think the discussion to-day will have done good. I do think that the appreciation of the duty and the obligations of military authority is ever improved by military authorities committing themselves to extreme opinions. I think the discussion has done good in this way, that it asks people to look, as Captain Nicholson said, at the matter fairly and squarely in the face and to discuss the question logically. If it is found that the economic conditions and commercial interests of the situation are such that the tunnel would be an immense advantage commercially to the country, and you have the guarantee of capitalists planking down their money to make it, then I think the question will only then arise as to the necessary military precautions to be taken to meet the new conditions it presents. There is one point on which I did not follow the gallant Admiral's arguments, and on which I hope we shall have more light. As I understand, those looking at the commercial aspect of the question seem to anticipate that, if the tunnel were made Great Britain would regain once more what she has to a certain extent lost, that is, the great redistribution *dépôt* of the world. They seem to expect the goods would come through the tunnel to be shipped from British ports to the various ports of the world. You may take it the other way about if you like; you may take it either way; but this is what I would like to hear discussed. Would it pay better for Continental exporters to bring goods, we will say, from Switzerland, for shipment to

America, paying the dues of the tunnel for the purpose of shipping those goods in England than taking them to a much nearer port, say to Antwerp or to a Mediterranean port through the Simplon Tunnel? With all humility I doubt very much whether we have any figures or grounds, as yet, to justify that contention that it would pay them better. Obviously goods going across the sea will find their way to the nearest port for shipment, because sea carriage is no doubt much cheaper than railway carriage; and there is no doubt the dues of the tunnel would be a very considerable addition to cost of transport. The point is as to the tunnel offering such advantages to continental shippers as to induce them to use the tunnel for the purposes of shipping goods from England. My own impression is that the advantages offered by the tunnel apply to a very limited area of Europe; goods for over-sea will, I think, take the shortest cut to a port, and the shipper gets his goods on to the sea as soon as he can. I merely mention this point, because in these discussions it is better to say what is in one's mind at once. There are one or two other points I would like to have made, but I will not detain you now. I am sure, however, I may take it from you that you are all deeply grateful to the gallant Admiral who has devoted so much time and attention to put the case before us in such an excellent manner. I am sure whatever our views are, if we are true patriots we are all anxious to get at the truth, and do what is really best for the country without being called "blue funkens" or "dreadnoughts," or anything else. We want to get at the truth and act fearlessly for the welfare of the country. It is a great pleasure to propose a hearty vote of thanks to Admiral Campbell for the excellent paper he has given us.

ARTILLERY IN THE MANCHURIAN CAMPAIGN.

*By Captain B. VINCENT, R.F.A., late Attaché to the 1st Japanese
Army in Manchuria.*

On Wednesday, 30th October, 1907, at 3 p.m.

Lieut.-General Sir I. S. M. HAMILTON, K.C.B., D.S.O.,
Commanding-in-Chief, Southern Command, in the Chair.

INTRODUCTION.

1. I HAVE been invited to lecture to-day on "Artillery in the Manchurian Campaign." It was a great campaign, and the artillery on both sides played a great part. It is impossible for me therefore in an hour's address to do more than touch on some of the more important considerations of artillery work in the field, and to give you a few examples and facts connected therewith.

REPORTS FROM THE FRONT.

2. Much of what I saw during fifteen months with the Japanese 1st Army was embodied in reports from the front, which have been circulated in their original form uncorrected by me. With regard to these reports, I would ask any of you who may have read them, to remember that they were subjected to a severe censorship, and were written under most difficult circumstances. Also, that some of the views expressed in them underwent modification after further experience in the campaign.

FOREIGN WRITERS.

3. During the two and a half years that have elapsed since hostilities ceased, a good deal has been written in Europe about "the artillery lessons of the war." Officers of Continental Armies appear to be allowed more liberty than those of our own Army in publishing their views. Russian artillery officers who went through the campaign have written freely, and have not failed to comment upon the many defects in the training and equipment of the Russian artillery, more especially at the beginning of the war. Most interesting extracts from articles that appeared in the Russian "Artillery Journal" have been translated and circulated officially by our General Staff.

RUSSIAN ARTILLERY.

4. Though handicapped at the outbreak of war with a new equipment, a new and complicated system of time-shrapnel ranging, an out-of-date manual of training, no telephones nor means of signalling, no shields, and no experience of firing from covered positions; handicapped also by ignorance on the part of many of their higher commanders of the use of artillery; yet the Russian gunners gained well-merited praise from their own Army and from the Japanese.

The same artillery which stuck its guns in glaringly conspicuous positions on the north bank of the Yalu, is now said to consider that "indirect laying" with clinometer and dial sight from concealed positions is the normal method for field artillery.

THE JAPANESE FIELD ARTILLERY.

5. The Japanese artillery, also, were quick to adapt themselves to the conditions of the war, and though handicapped by an inferior gun to that of the Russians, and by miserable ponies in their gun teams, yet by bravery, skill, and ingenuity they managed to hold their own against their better armed and more mobile adversaries. They, like the Russians, had no shields, no telephones, and no proper system of flag signalling in the early part of the war.

COMPARISON WITH THE BRITISH FIELD ARTILLERY.

6. The Japanese field artillery compared unfavourably with that of our own Army in 1904, in equipment, fire tactics, and especially in mobility.

The Russian gun was superior to our 15-pounder, but the Russian methods were antiquated compared to our own at that time.

Since 1904 we have re-armed our field artillery, and have improved, though by no means perfected, our apparatus for "indirect laying." Our field artillery is at the present moment a long way superior in both equipment and training to that of either belligerent during the Manchurian campaign. We must remember, however, that the Japanese are now re-arming with a Q.F. gun, and that the artillery officers on both sides gained enormous experience, which we may presume is being put to the best use.

THE DANGER OF HARD-AND-FAST RULES.

7. In peace time there is a very natural tendency to theorise and to lay down rules. We cannot have the realities of war always before us. We have to use our imaginations, and in doing so are inclined to conceive certain sets of conditions only for which we vainly endeavour to formulate rules.

Such contentious questions as "covered" or "open positions," "direct" or "indirect laying," "time-shrapnel ranging," or "percussion shrapnel ranging" are sometimes treated as if it were possible to state principles to suit all conditions, and often, for instance, as if there was only one "set pattern" form of "crest line."

This in spite of the admirable spirit of open-mindedness with which our latest training manuals for all arms have been framed, and which rightly accords a wide latitude to the personal initiative of leaders of all ranks.

CAUSES OF JAPANESE SUCCESS.

8. I observed a similar spirit of open-mindedness on the part of the Japanese in Manchuria. In Japanese tactics, as in the Japanese language, there are no rules. Kuroki's army fought in mountains and on plains, in extremes of heat and cold, on the bare hill-sides of winter and through the millet crops 12 feet high in summer. Their success, as that of the other armies of Japan, was due to:—

- a.* Practical and unprejudiced common sense.
- b.* A sound military system which inspired confidence in everybody.
- c.* Careful preparation for a definite object, which was pursued with energy and determination.
- d.* Tactical training, based on a proper appreciation by all officers of the capabilities and limitations of branches of the Service other than their own.
- e.* Discipline which was never relaxed in the slightest degree throughout the war—a discipline which in Japan is a plant of very ancient growth, with its roots embedded deep in the character of the nation. A discipline which in my opinion is only possible in a military organisation based on compulsory service.
- f.* Enthusiasm—military spirit, patriotism—call it what you will—a most valuable quality for which the world has given them full credit.
- g.* Lastly, to the fact that the Japanese are not as yet over-civilised. In battle the officers and soldiers of Japan still “see red” all the time.

HIGH AVERAGE OF EFFICIENCY.

9. With the Japanese Army one saw what real military efficiency is, and what great results come from it. In all branches and departments of the Service one saw a high average of efficiency. There were no bad units nor over-strained departments. There was no over-worked staff nor hurried mobilisation.

Taking into consideration numbers and average efficiency, the Japanese infantry in the Manchurian war were probably the best the world has ever seen.

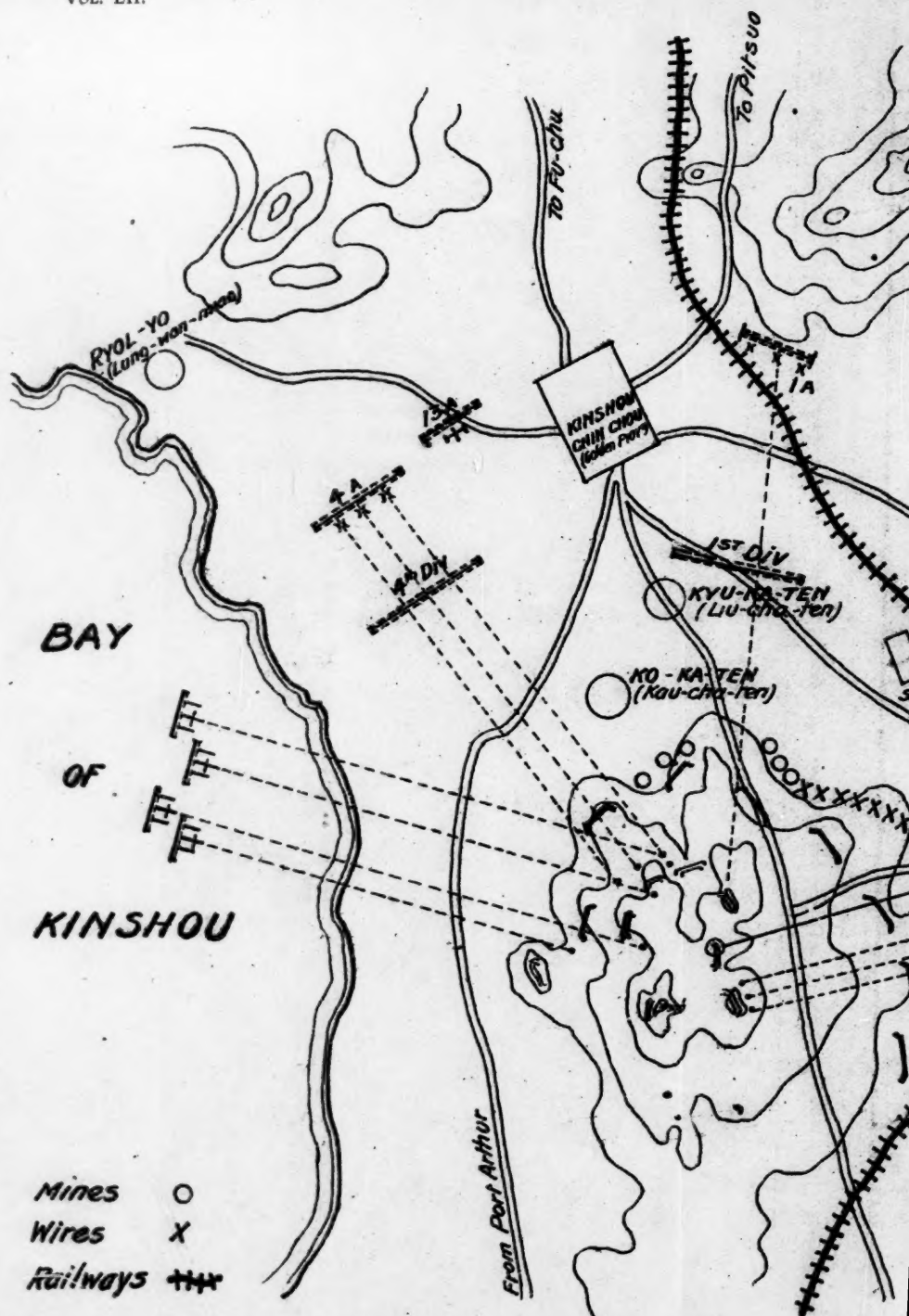
JAPANESE OPINION OF THEIR FIELD ARTILLERY.

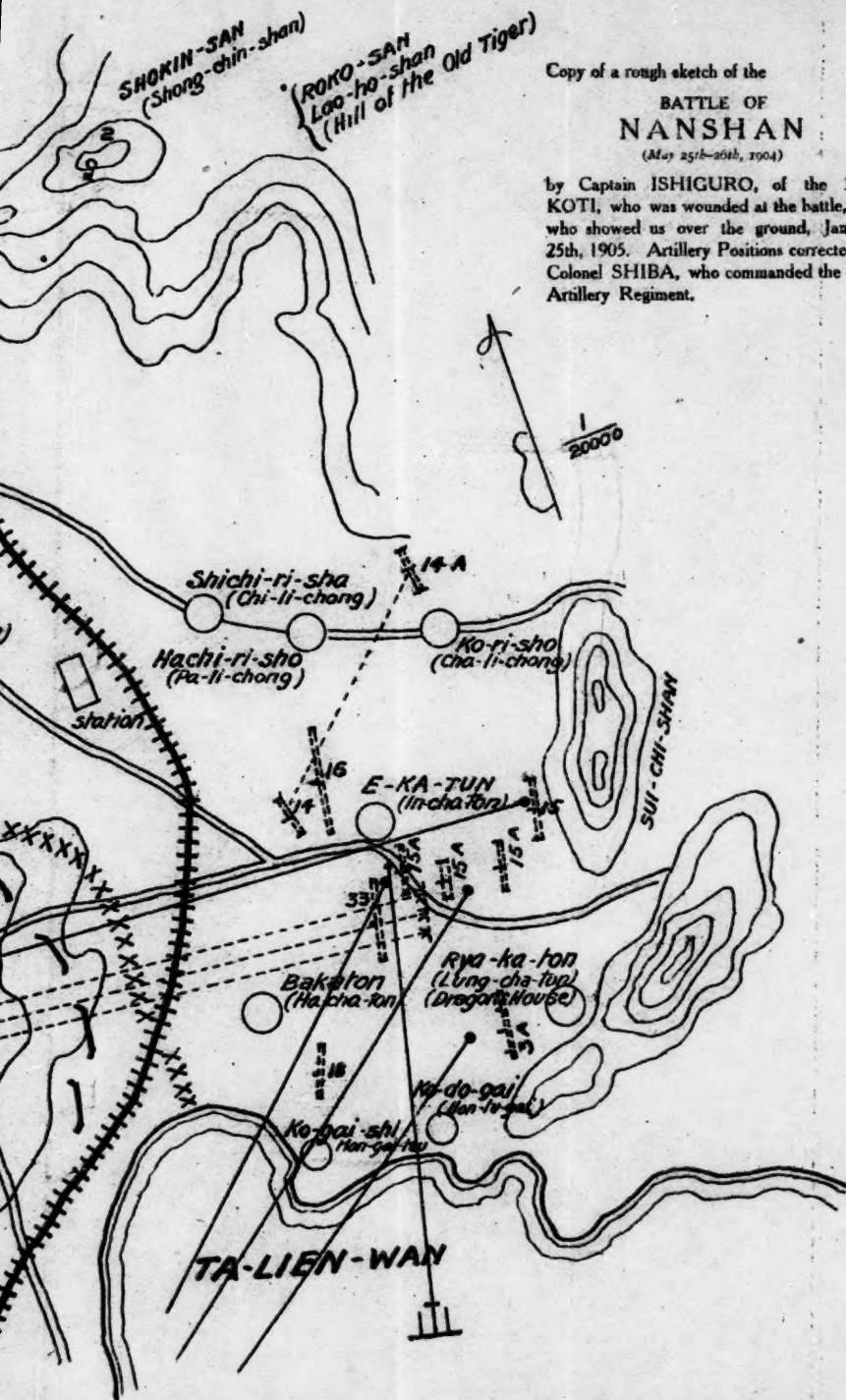
10. Their field artillery were not so good. Doubtless the officers and men were just as brave as their brothers in the infantry; yet I know it to be the opinion of many Japanese officers, that the field artillery did not come up to their expectations in the duty of rendering support to the other arms.

Artillery regiments no doubt varied to a certain extent in this respect; some may have been more dashing than others. In particular a regiment commanded by one of the most distinguished officers of his rank in the Japanese Army, who has done me the honour of coming to listen to my address to-day.

ARTILLERY TACTICS—CAUTIOUS AND SLOW.

11. It is easy to be wise as a spectator, but the opinion I formed in Manchuria was that the field artillery on either side was over-cautious in tactics, and too slow in methods.





Copy of a rough sketch of the

BATTLE OF NANSHAN

(May 25th-26th, 1904)

by Captain ISHIGURO, of the 33rd KOTI, who was wounded at the battle, and who showed us over the ground, January 25th, 1905. Artillery Positions corrected by Colonel SHIBA, who commanded the 15th Artillery Regiment.

There was a tendency to fight at long ranges—4,000 to 6,000 yards—and consequently there was often great waste of ammunition without decisive result. At such long ranges the possibility of utilising oblique fire was much reduced.

I seldom saw field batteries advance in daylight, and then only after the opposing artillery had withdrawn, or in the pursuit, or in the case of the Russians, to retreat.

Artillery tactics on both sides were of a very deliberate nature. The ground was studied and the initial positions for guns carefully considered before committing them to action. On the positions chosen depended to a great extent the entire framework of the battle. Guns came into action or changed position, as a rule, just before dusk or during darkness, and opened fire at daybreak.

12. There were many causes to account for this. The great range and power of modern firearms necessitates greater caution in tactics and a more general use of some form of artificial cover.

It is the first campaign in which modern field artillery has been used extensively by both combatants. The Russians possessed a gun with a time-shrapnel range considerably longer than that of their adversaries,¹ and naturally desired to make the most of that advantage. The Japanese carried high-explosive shell of which the Russians had none, and they therefore used it at the extreme ranges of their gun.²

GUN DETACHMENTS TAKING COVER.

13. Artillery and infantry action commenced simultaneously, and as a rule batteries managed to continue firing throughout the engagements. The difficulty of ammunition supply was alone sufficient to necessitate intermittent fire in the prolonged battles that took place. The gun detachments were often ordered under cover, either in deep pits on either side of the guns or behind natural cover to a flank.

OPINIONS OF JAPANESE INFANTRY.

14. When discussing this subject with the colonel of one of the infantry regiments of the 2nd Division he said:—

“Guns must support infantry and fire up to the last moment of the assault. It is no use firing at long ranges, as then the artillery officers cannot follow precisely the movements of the infantry, and neither the moral effect nor killing effect of shrapnel is sufficiently great. The gunners must advance with the infantry and take up positions at decisive ranges, even if they have to lose men and horses in doing so. And why should not the gunners lose men? We infantry have lost half our numbers since the beginning of the war, whilst the officers and men of the artillery are nearly all there.” He also went on to say that the Russian shrapnel did not seem to kill them because the artillery fought at such long ranges and the gunners always got underground.

¹The T.S. range of the Russian gun, 1900 pattern, was 6,000 yards. The time fuzes of Japanese Field and Mountain guns could be set up to 5,000 yards, but a Japanese Artillery Colonel told me that Japanese time shrapnel fire was of little use over 3,500 yards.

²The Japanese gun was sighted up to 6,200 yards.

On another occasion one of the hardest fighting battalion commanders of the 2nd Division, when talking to me about artillery, expressed a fear that, if the field artillery were re-armed with a better gun, they might stay still further behind!

At the battle of Mukden the Russian shrapnel often failed to penetrate the thick winter clothing worn by the Japanese soldiers, and I remember one authentic case when a man was hit by seven shrapnel bullets at 4,000 yards without sustaining serious injury.

NEW JAPANESE REGULATIONS.

15. It is an interesting fact that the amendments to the Japanese Field Artillery Training Manual, 1907, lay down that:—

"In order to help the infantry attack, a certain number of batteries *must* follow the infantry to within effective ranges, to form a rallying point for the attacking column, and to encourage their *moral*."

Also:—

"For the purpose of displacing machine or other guns from behind cover, it may be necessary to advance a certain number of guns to the neighbourhood of the skirmishing line."

MOUNTAIN ARTILLERY.

16. In advancing under fire to support the infantry attack, the Japanese mountain artillery gained more credit than the field.

In a memorandum dated 28th August, 1904, General Kuropatkin stated:—

"The Japanese are very quick and skilful in the use of their mountain guns which accompany their infantry and most unexpectedly appear upon our flanks. On some occasions they have even appeared in the firing line. They easily occupy suitable positions, and quickly change from one position to another. They appear almost immediately in any position which the Japanese infantry has taken, and render valuable assistance in making the Japanese tenure of it secure."

As I said in my reports, the co-operation of "mountain" and "field," that is to say, of "pack" and "draught" artillery, was most noteworthy. This was especially so in the IVth Army, where the artillery of the 5th and 10th Divisions was all mountain.

In the Ist Army also, the 12th Division mountain artillery did most useful work. During the battle of Liao-yang a mountain battery was attached to each of the other divisions, and these batteries were always the most advanced and hardest worked.

From the commencement of the battle of Mukden the 2nd Division exchanged half its field artillery for half of the mountain artillery (three batteries) of the 12th Division, and the combination worked splendidly.

The Chief of the Staff, Ist Army, told me that he would like to have two mountain batteries per division in war time, the officers and men to receive some training in peace time and the *matériel* to be kept ready in store.

An arrangement of this sort has, I understand, now been adopted—at any rate, the divisional artillery of all 17 Japanese divisions is

now field, whereas before the war, of the 13 divisions which then existed, the divisional artillery of 5½ was mountain.

PERSONNEL OF MOUNTAIN AND FIELD SHOULD BE INTERCHANGEABLE.

I am very strongly of the opinion that in our artillery as with the Japanese, officers and men of mountain and field batteries should belong to the same regiment, and be interchangeable if necessary. The work of both is practically the same.

EXAMPLE: 15TH ARTILLERY REGIMENT AT NANSHAN.

17. As an example of field artillery advancing in support of an infantry attack, the colonel of the 15th Artillery Regiment, 1st Artillery Brigade, told me that at the battle of Nanshan, May 26th, 1904, his regiment came into action at 6 a.m. west of Sui-chi-shan (see sketch), and came under the fire of the heavy guns in the Russian main position, which was very accurate from the first round. Here some casualties occurred, including a battery commander wounded.

The guns in the Russian main position were silenced about 9 a.m., and the 15th Artillery Regiment then advanced to three other successive positions some 600 to 800 yards each time. Whenever they moved, the Russian field guns fired across Ta-lien-wan Bay at them, but the range was too great to stop them. This fire, however, effectively prevented the 3rd Artillery Regiment, which was closer to the Russian guns, from advancing.

The Japanese infantry kept sending back to ask the artillery to silence the Russian machine guns. The colonel sent officers right up to the infantry firing line, but they could not tell which of the many loop-holes contained machine guns, nor were they able, in the general din of battle, to locate them by the noise. Some of his batteries fired on the Russian infantry entrenchments, and some on the Russian artillery across the water.

He mentioned that the naval artillery fire from the other side of the isthmus was very effective against the Russian main position, and also that some of the naval shells came right over and burst near his guns.

The colonel said that the advance of his regiment across the open in daylight was only possible after the Russian artillery in the main position had been silenced.

COMMUNICATION BETWEEN ARTILLERY AND ADVANCED INFANTRY.

18. The Japanese fully recognise the necessity of keeping the artillery informed of the position of the advanced infantry, and have laid down in their latest regulations that patrols will be attached to the infantry line by officers commanding artillery battalions (3 batteries) for this purpose.

Throughout the war the small handkerchief flags, one of which almost every soldier carried in the hopes of being able to tie it to his bayonet as first into the enemy's trenches, together with the battalion and regimental standards, proved a great help to the artillery.

In the IIIrd Japanese Army at the end of the war, artillery officers were sometimes sent forward with hand shields¹ and telephones,

¹ These shields were 11½ inches wide, 13 inches high, ½ inch thick and weighed 12 lbs.

whose duty was to keep as far as possible with the advancing infantry, and to send back their observations to the line of guns.

Short as the Japanese were of artillery officers, I often saw one sent out to a flank with a free hand to observe the fire, and with orders to report by previously arranged signals or even by galloping back.

EXAMPLE: 14TH OCTOBER, 1904.

19. On 14th October, 1904, during the battle of the Sha-ho, I was sitting on the top of a high hill north of San-chia-tsu, which we afterwards called Okasaki Yama. On this hill was a young officer of artillery with a telescope, and two orderlies. Three batteries of his regiment were in action on low ground some 2,000 yards to the front. They were engaging two Russian batteries further to the north. During a temporary cessation of fire, we could plainly see the Russian gunners set alight to the high stooks of millet in front of their batteries, and then, under cover of the smoke, bring up their limbers and retire, unobserved by the Japanese artillery. The young officer's only means of communicating with his batteries was by orderly, which, in this case, of course, proved too slow.

ADVANCED OBSERVATION STATIONS.

20. The question of advanced observation stations is one of the very greatest importance, and I am not aware if any clear and concise ideas have as yet been formulated on the subject.

When a battery is working singly, it is, as a rule, possible to assist observation by sending an officer forward or to a flank; but when large forces are engaged, I think that, generally speaking, it is one of the functions of the Higher Artillery commanders to make arrangements for supplementing the observation of battery officers.

With the 1st Army in the mountains, there was no difficulty in finding good observation stations; but on the plains this difficulty was always felt. Bamboo ladders, trees and roofs of houses were brought into requisition, but such exposed points of vantage proved anything but pleasant for long.

There is a most unquestioned advantage in being able to see the target, and at the same time to command the guns by word of mouth.

MEANS OF COMMUNICATION.

21. Up to and including the battle of the Sha-ho, the Japanese artillery employed chains of men, trained to pass orders, or mounted messengers. Such means were too slow, and I myself saw great opportunities missed, through not being able to communicate quickly enough with the guns. After the battle of the Sha-ho, the Japanese artillery, and, in fact, the whole army, went in heavily for the telephone.

Before the war they experimented with visual signalling, but discarded it as impracticable. They considered it too difficult to train signallers in sufficient numbers for armies on a war footing, and that where large forces are engaged, flag signalling only leads to confusion and mistakes.

It must be remembered, however, that the Japanese syllabics of some 50 signs each do not lend themselves so well as our alphabet to a signalling code.

Personally, I think that for artillery both visual signalling and telephones are necessary. In war it is impossible to rely entirely upon the latter. In peace time, we should train a large proportion of our *personnel* in the use and care of telephones; but at the same time, we must be careful to maintain our present high standard in visual signalling.

CONCENTRATION OR DISPERSION OF BATTERIES.

22. The question of concentration or dispersion of guns is, of course, to a large extent, a matter of communication. Provided dispersed batteries can be controlled, their fire ought to be more effective and less easily silenced by the enemy than if they are all in one line. Dispersion also disturbs the fire discipline of the enemy's artillery by making them range on several points. Also, brigades or batteries can observe each other's fire.

I heard one distinguished Japanese artillery general maintain that it is more difficult to silence a line of guns than dispersed batteries, each of which, he thought, could be knocked out singly.

Anyhow, dispersion of batteries with concentration of fire must be practised, if only for the reason that it is seldom possible even on level country, like the Liao-ho plains, to find positions suitable for a long line of guns.

In Manchuria I, personally, never saw more than four field batteries in action in one continuous line.

During the manœuvres in the East of France, in September, 1905, I never saw more than 16 guns together in one line, though the country was so open that in places the batteries of an Army Corps could have been placed in action together.

Again, during the manœuvres of two Austrian Army Corps and two cavalry divisions in Silesia, in September, 1906, I never saw more than three batteries in one line, though here again the country was suitable for larger numbers.

THE O.C. DIVISIONAL ARTILLERY.

23. Before leaving this subject, I would impress upon you the necessity of the O.C. Divisional Artillery in the field, acting as an artillery commander in every sense of the word, and not merely as a staff officer to the divisional general.

A point that impressed me particularly in Manchuria was the importance of having a higher artillery commander to carefully watch the tactical situation, for a proper appreciation of which he must be in the confidence of his general. The whole attention of battery officers is taken up with the fire of their own guns, and the interior mechanism of their batteries.

The O.C. divisional artillery should at all times maintain a central control over his guns, although it may be often expedient to delegate some of them to detached bodies of troops. In the 1st Japanese Army the lieut.-generals commanding divisions, and the colonels commanding divisional artillery, were very real personages, who were always in positions from where they could see, and who made their presence felt in the battle-field. Either the O.C. artillery or his adjutant always remained with the Divisional Head-quarters during an engagement. Although the Japanese had only 36 guns in their divisional artillery,

compared to 70 in ours, still I think the principle holds good. The C.R.A. should be a commander subordinate to the G.O.C. Division, ready to take personal command of all his guns if necessary.

"DIRECT" AND "INDIRECT LAYING."

24. During the war, the Japanese, generally speaking, used "indirect laying" at the beginning of an action, when they did not know much about the enemy's position. Owing to the inferiority of their gun to that of the Russians, the Japanese were bound to endeavour to range before being discovered by their more rapid firing adversaries. Also, their field guns being comparatively light, they were able to make alternative positions and run their guns up, if necessary, so as to fire "direct." This the Russians, with their heavier equipment, could not do, neither can we with our new 18-pounders.

The Russians in the early part of the war always brought their guns into action on or a few yards behind crest lines, from where they could get a clear view over the sights.

31ST JULY, 1904.

25. At the battle of the 31st July, near Towan, the Russians had taken infinite trouble in constructing roads up the mountains in order to place their guns in "eagle's nest" positions. But the emplacements were badly made, and, owing to the height of the positions above the valleys, the amount of "dead ground" in front was very great.

EXAMPLE: TEHLISSU.

26. An officer of the Russian artillery, writing about the battle of Tehlissu (Wafangou) in June, 1904, said that:—

"Batteries were so badly placed that only 50 out of 100 guns were able to do anything." He put it down to the ignorance of the higher commanders of the employment of "indirect laying" by artillery.

EXAMPLE: TAH-SHIH-CHIAO.

27. Russian writers say that "indirect laying" was first used by them at the battle of Tah-shih-chiao, 24th July, 1904, and that after this battle the Russian Army Corps commanders, Zarubaev and Stackelberg, reported most favourably upon it. In fact, it there received its official baptism and recognition, and the prolonged struggle at Liao-yang saw it universally accepted by the Russian Army.

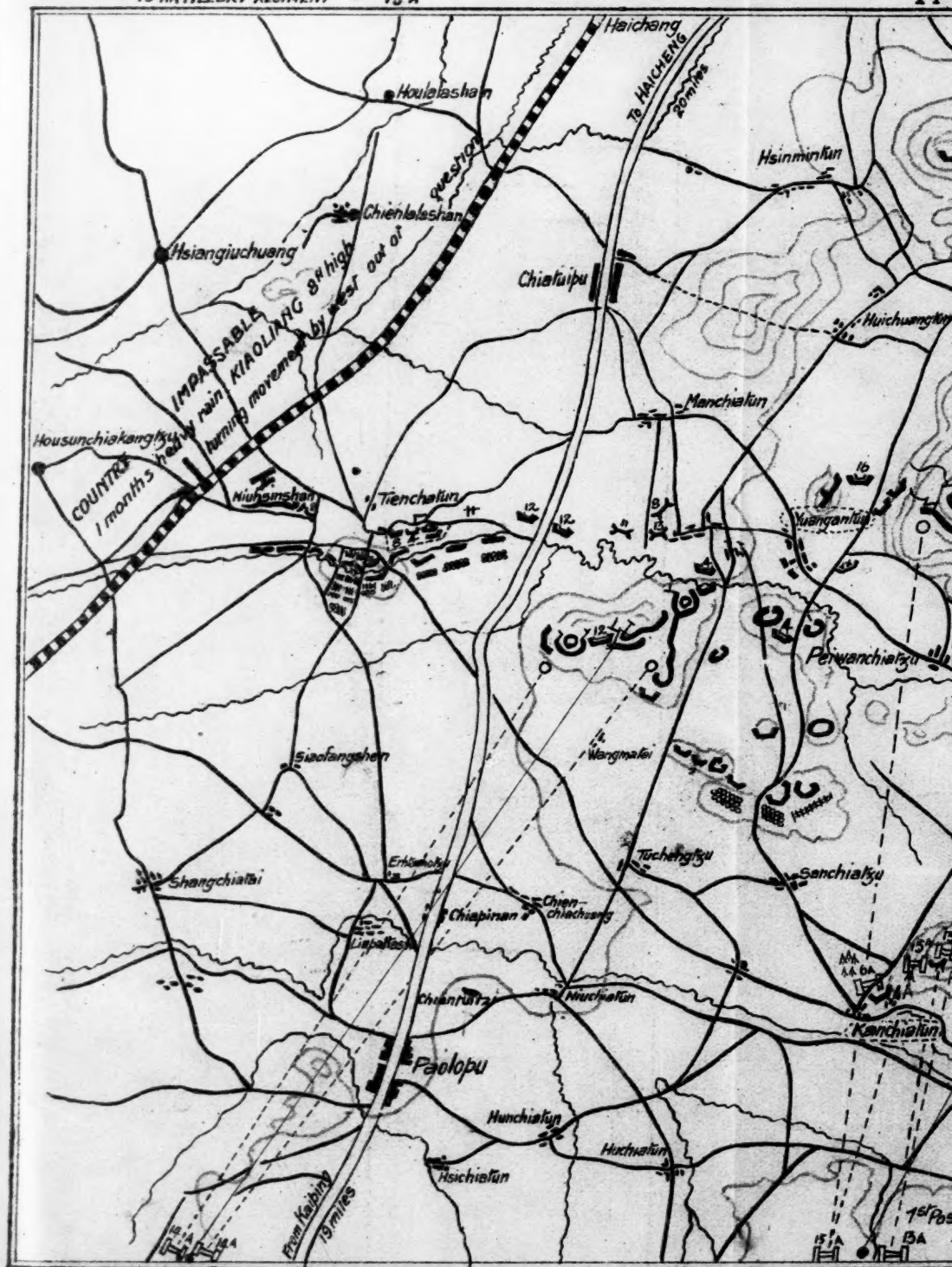
JAPANESE ACCOUNT OF ARTILLERY ACTION AT TAH-SHIH-CHIAO.

28. This 24th of July was a sad day for the Japanese artillery. Some five Russian batteries, or 40 guns, defeated seven Japanese artillery regiments, or 252 field and mountain guns.

While the IInd Army were waiting some weeks at Kai-ping the rainfall was so heavy that the country west of the railway became impassable, added to which the millet was then 8 to 10 feet high. A turning movement against the Russian right was therefore out of the question.

On the morning of the 24th July the 15th and 13th Regiments, 1st Independent Artillery Brigade, came into action on low ground near

TA



RUSSIAN ARTILLERY about 5 BATTERIES



Liu-chia-tun, south of Sun-chia-tun (see sketch). Owing to the intervening rise they could only see the crest of the Russian position on Ching-shin-shan, and fired at it all day. The colonel sent officers to point 275 on the high ground behind to try to locate the Russian guns east of Cheng-chia-kou; but these officers failed to find them. Meanwhile Army Headquarters on the hill east of point 275 could see the Russian guns firing at the 13th and 15th Artillery Regiments, and also those near Yuan-gan-tun engaging the 14th and 4th Artillery Regiments. The Staff kept sending down information to the guns, but without result.

It appears the Russian gunners could just see the Japanese artillery over the crest of the intervening hill, or at any rate from observation stations close to the batteries.

The same evening the 6th, 15th, and 13th Artillery Regiments advanced to the north of Kan-chia-tun and prepared to engage the Russian artillery on the following morning. During the night, however, the 5th Division made a successful attack, captured Tai-pin-ling and threatened the Russian line of communications, causing them to withdraw. Throughout the day the Russian shooting was very accurate, and one Artillery Regiment lost about 25 per cent.

LIAO-YANG.

29. At the battle of Liao-yang the Russian batteries were for the most part admirably placed in well-entrenched covered positions. In the case of those opposing Kuroki's army north of the Tai-tsu-ho, where semi-permanent emplacements had not been constructed, the guns were well concealed in crops.

The Russian artillery south of Liao-yang, behind the Shou-shan-pu portion of the position used "indirect laying" almost entirely.

From my point of vantage on the highest hill east of Liao-yang during 30th and 31st August, I could plainly see all the Russian batteries in front of the IInd and IVth Japanese Armies. The gunners of those armies on the low ground south of the position had great difficulty in locating any of the Russian guns. Japanese artillery officers were sent some miles round the eastern flank of the Shou-shan-pu position to endeavour to do so. I was told, however, by an officer who went that it was of little use. It took too long, and things looked so different from a flank, that their information was of little value by the time they got back to their batteries. No doubt if they had had heliographs they might have done better.

NOTE.—I may mention that the names of places presented a constant difficulty to us in Manchuria. Chinese ideographs have the same meaning in Japanese and Chinese, but the pronunciation in the two languages is entirely different. You will understand what I mean if you consider that numerals in Europe mean the same thing in each country, though they are called by different names in each language.

The Japanese always called places by their Japanese names. For instance, Chin-chia-pu-tsu was in Japanese Kinkahoshi; Yang-tsu-ling, Yoshirei; Mukden, Hoten; etc.

Again, in addition to the standard Pekinese pronunciation of any name, we had to deal with the Russian version of the same, as used in their maps, and also that of the local dialect.

Thus we were often confronted with four different names for some small out-of-the-way Chinese village.

Here I may mention that the only heliograph I saw throughout the war was one on the top of Shou-shan, which was just visible through the mountains on 28th August. It was the first sight we with the 1st Army had of the Liao-yang position.

WEI-CHIA-KOU.

30. The following is an interesting example of the advantage of field artillery being trained to the use of "indirect laying," and also of the danger of getting too near the enemy's guns without a good observation station, from which to direct the fire.

On 30th August some of the infantry of the 10th Division, IVth Army, got too close to the Russian position on low hills about 1,500 yards from the village of Wei-chia-kou (see sketch). They remained under severe fire the whole of 30th August, and could not retire across the open. That evening the divisional mountain artillery came into action to support them, but the Russian artillery took advantage of their superior range, and the Japanese mountain guns suffered severely.

A Field Artillery Regiment from the IIInd Army, having just been sent to reinforce the 10th Division, the colonel went to reconnoitre just as darkness was closing in. After dark he took up a position with three of his batteries across the road leading to Wei-chia-kou, and early on the 31st he opened fire with very good effect on the Russian artillery. The latter then withdrew down the rear slopes and fired "indirect" against him. He had no observation station, and, being on low ground, was unable to reply, nor was he able to withdraw his guns till dark. His men lay all day under fire, which was so severe that they could not even dig to improve their entrenchments. Occasionally he was obliged to fire off his guns in order to divert the attention of the Russian artillery from his own infantry. The latter actually retired from Wei-chia-kou behind the guns, one battalion remaining on each flank as escort. On the night of the 31st the guns were withdrawn and moved to a flank in order to enfilade the Russian batteries; but by the morning of 1st September the latter had withdrawn. The colonel told me that the Russians, having had the whole day to range, their fire became very accurate towards evening. They got several direct hits and broke some wheels. The losses in the three batteries during the 31st were 3 officers and some 50 men killed and wounded.

31. In this episode there is much food for thought. In fact one could give several lectures on it alone, as nearly all the principles of attack and defence are involved. Supposing the Japanese infantry had been assaulting the Russian position, the Russians could not well have withdrawn their guns down the rear slope, but would have had to remain and fire "direct."

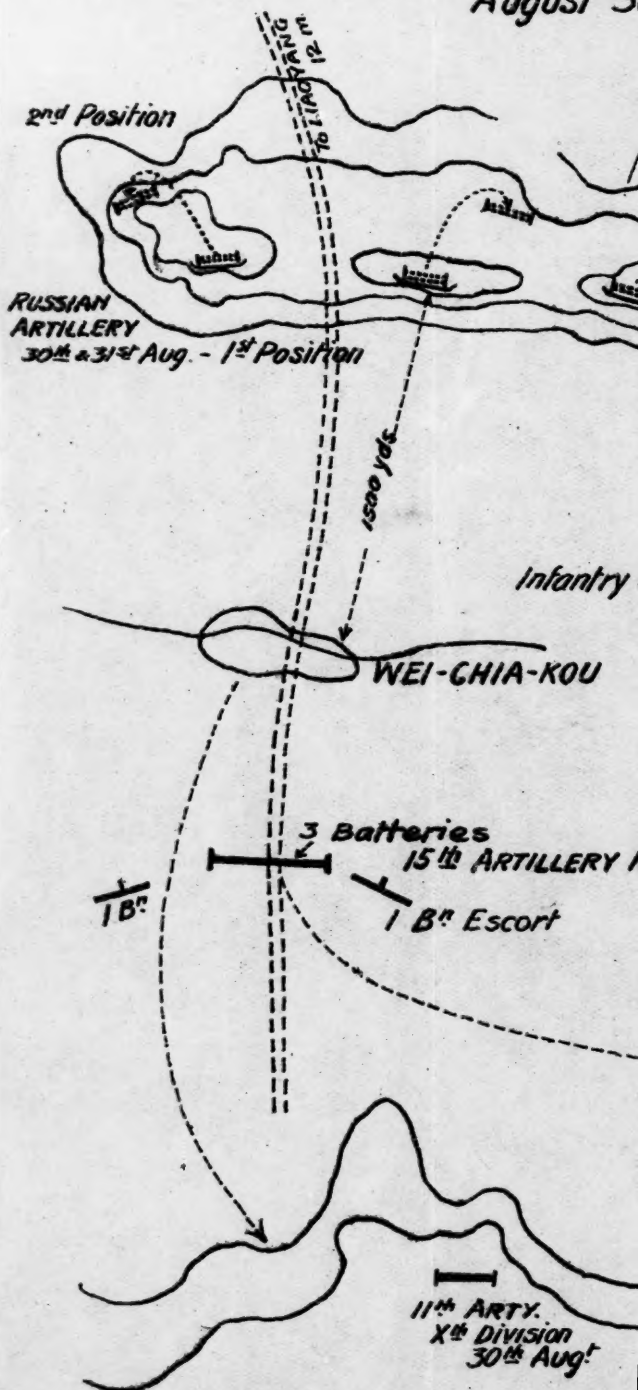
Another solution of the problem as it was would have been for the Russians to have left a few of their guns—say one or two sections—to fire "direct" at the infantry, while the remainder were withdrawn to engage the artillery with "indirect" fire.

SHA-HO.

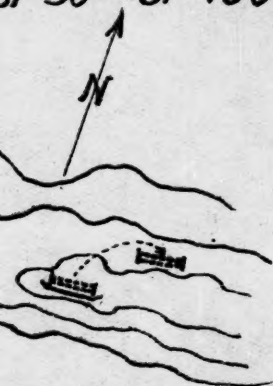
32. At the battle of the Sha-ho in October, 1904, when the crops had been cut and the country was comparatively bare, the flashes of the Russian guns or the dust thrown up could always be seen. This they quickly realised, and occasionally tried to divert attention from their

ARTILLERY ACTION NEAR WEI-CHIA-KOU

August 30



FI-CHIA-KOU
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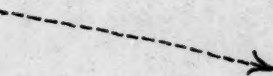


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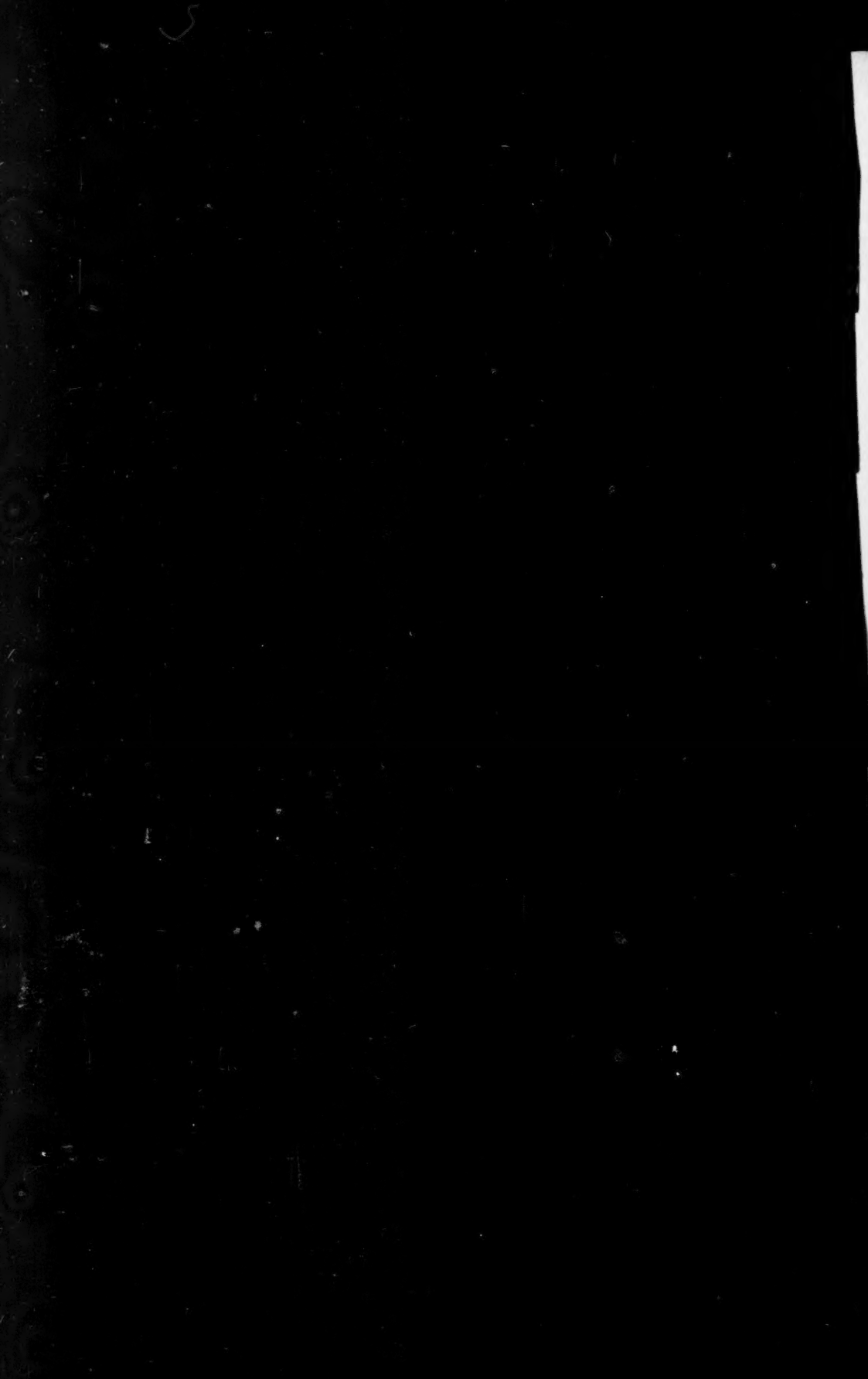
ARTILLERY REG^t 31st Aug^r

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real gun positions by sham flashes. This ruse was also copied by the Japanese, but it never deceived anybody for long.

MUKDEN.

33. During the opening stages of the battle of Mukden the artillery fighting across the Sha-ho was of a special nature, each side having had the whole winter in which to make every preparation for the great battle which was bound to take place in the following spring. In front of the right of the 1st Army the Russian artillery fired almost entirely from concealed positions. On some occasions, such as at Kao-tai-ling, 26th February to 8th March, and in their position north of the Hun-ho, near Fushun, 10th March, their batteries were hidden behind a long, continuous line of defence, and the flashes of the guns were not seen from the Japanese side.

RUSSIAN EXPERIENCE.

34. It is claimed by some Russian artillery officers that they found they could shoot quicker and more accurately, even at continuously moving targets, with goniometer and clinometer than with tangent sights. They say that even when batteries were buried in the middle of high millet crops, with no aiming point available, that the sun's shadow on the dial-sight was at times used successfully instead. As, however, the movement of the sun is about $\frac{1}{4}^{\circ}$ a minute, I am inclined to doubt the accuracy of their fire.

35. Recent Japanese regulations lay down that laying will usually be "direct," and "indirect" the exception.

It is easy to conceive numbers of situations where either would have its uses. Concealed positions and "indirect laying" are very useful under certain circumstances, such, for instance, as when firing against distant artillery in action, or infantry redoubts. A battery skilfully placed in a concealed position may be able to keep down the fire of several hostile batteries, thus leaving other batteries free to engage the enemy's infantry. One disadvantage is that fire under section control cannot well be utilised. Such fire is necessary sometimes against local counter-attacks. Living targets expose themselves nowadays for a very short time only, and must be promptly dealt with.

I think you will agree with me that the whole question of artillery being concealed or in the open, and the method of laying used, are matters to be decided by the common-sense and judgment of the man on the spot, in conformity with the configuration of the ground and the operations in progress. The chief thing to insist upon in peace time is thorough technical training.

TIME-SHRAPNEL RANGING.

36. And now a few words about time-shrapnel ranging. Before the war the attitude of mind of the Japanese with regard to time-shrapnel ranging was much the same as our own at the present time. Many of their officers were very sceptical about the value of it. In Manchuria they tried it with considerable success. But their latest regulations state that:—

"Time-shrapnel ranging requires further trial before it can be laid down as a regulation procedure."

The Russians ranged with time-shrapnel, and on the whole very successfully. There were some noteworthy occasions, however, when I observed them wasting tons of ammunition without having found the range, when possibly a few rounds of percussion projectiles would have put them right.

The experience of the war was that time-shrapnel, bursting in the air on any part of the battle-field, may have some useful effect, whereas percussion shrapnel does very little damage.

My opinion is that time-shrapnel ranging is necessary where percussion shrapnel ranging is difficult, or where speed is essential. Also, that whatever percussion projectiles we use for ranging purposes, ought to be capable of emitting a thick cloud of smoke.

THE EFFECT OF ARTILLERY FIRE.

37. With regard to the effect of artillery fire, I was often near enough to the 2nd Division Artillery when under accurate rapid fire from Russian guns, to fully realise what a perfectly overwhelming effect such fire has. To the north of Mo-tien-ling on 31st July, 1904, near Yen-tai coal mine on 11th October, and on other occasions, I saw Japanese batteries simply smothered in fire. The Russian shrapnel burst so fast and furiously that it would have been extremely difficult to have worked the guns in reply. On these occasions the Japanese did not attempt to do so, but remained under cover until the rapid fire ceased. They then opened fire, until a fresh storm of shrapnel again drove them to ground. If any horses, limbers, or wagons had attempted to approach the guns, they would most certainly have been destroyed.

Occasions were very rare when the artillery on either side had a chance of firing at medium ranges against infantry in the open or artillery on the move.

PROJECTILES.

38. Against troops in entrenchments such as the Japanese and Russians learned to make, artillery fire did little damage.

Time-Shrapnel.—Time-shrapnel was exceedingly useful in making the enemy's infantry keep their heads below the parapets and in preventing them from taking aim at decisive ranges, but both time and percussion-shrapnel were useless against troops behind walls or in houses.

High Explosive.—On the other hand, high explosive shell was of little use against entrenchments. The noise of explosion and the high column of smoke and dust which it produced, is said to have frightened Russian soldiers newly arrived at the front. Otherwise it only blew gaps in the parapets which were easily repaired. Against villages, however, it had great effect.

Early in the war high explosive shells were in great favour, partly because they were the only projectiles with which the Japanese could hope to damage the Russian artillery at long ranges. Towards the end of the campaign their popularity waned, and the amount carried decreased from about 30 per cent. to about 8 per cent.

Common Shell.—At the battle of Mukden common shell which broke up into a few large blocks were experimented with, but against entrenched infantry these proved no more effective than the high explosive shell.

At the end of the war opinion varied greatly amongst Japanese officers as to whether high explosive or common shell should be carried or not with field and mountain artillery. This leads to the question of howitzers.

FIELD HOWITZERS.

39. All were in favour of having howitzers to supplement field and mountain guns. Officers who experienced fire from Russian howitzers when on Manju-yama (2nd September), or on the Pen-hsi-hu position 9th-14th October), or at Hei-kou-tai (in January, 1905), told me that the plunging fire of these weapons was far more dangerous than the fire of field guns under certain conditions.

Now that Armies expend so much labour on field fortification, the importance of field howitzers has correspondingly increased. Villages in most theatres of war are bound to be of great tactical importance. Therefore both with the field artillery of a division of all arms and I would suggest also with the horse artillery of a cavalry division, we should have some weapons capable of dealing with troops entrenched in villages. Shrapnel proved useless in Manchuria, and the effect of the high explosive shell from small calibre guns is not sufficiently great; therefore, howitzers are needed. Both guns and howitzers can then fire the projectiles for which they are specially constructed.

EXAMPLES OF FIRE EFFECT.

40. The following is an example of the inefficiency of shrapnel against villages:—

In front of the 7th Division at the battle of Mukden a village called by the Japanese Yokatun was absolutely filled with their troops; there must have been at least a brigade of infantry, transport ponies, etc. Three Russian batteries were firing from Ssu-chan-tsu and Liu-t'iao-tun at a range of 2,800 to 3,000 yards. Their fire was very accurate; the village was enveloped by bursting shrapnel, and it looked as if nothing could possibly remain alive in it. After one hour of this fire, the Foreign Attaché who told me this story said he only saw two wounded men in the dressing station there, and a few dead horses.

The same Attaché with the IIIrd Japanese Army told me of the following interesting incidents:—On the 7th March, in front of Tsao-hua-tun, 8 Japanese batteries had to advance over 2,000 yards of open ground under Russian artillery fire, their pace being, as usual, a very slow trot. They had many casualties, but all their guns eventually arrived and came into action about 1,500 yards from Tsao-hua-tun. The mountain artillery of the 9th Division also came into action 1,200 yards from the same village. All opened fire with high explosive shell against the village and smashed the houses to bits, no doubt greatly assisting the advance of the infantry.

Again, on 10th March, near the same place, two Japanese field batteries advanced to Kou-shan-tun, came into action near the village, and broke down the walls of Tung-chang-shang, occupied by the Russians. The latter tried several counter-attacks, and got right between the guns. On this occasion the Cossacks charged on foot with their lances. The casualties were very heavy among the Japanese. Many bore the marks of lance wounds, and many of the Russian dead had been killed by shrapnel fire.

Just west of the railway, in the Russian line between Kou-chih-tun and Wan-chen-chung, he saw some 300 Russian dead, many showing signs of having been killed by shrapnel. The infantry firing lines on this occasion were never closer to each other than 1,000 yards.

Near the railway on the same day, a Russian battery was seen to retire, leaving two guns in action, apparently abandoned. Later, two limbers were observed galloping back to them, and, at the same time, it was seen that the Russian gun detachments had remained with the guns. Eight Japanese batteries then opened a rapid fire on them at 2,600 yards, but the Russians succeeded in limbering up and getting away.

10TH MARCH, NEAR PU-HO.

41. On the 10th March, the advanced guard of the Imperial Guards Division, 1st Army, which had pushed on in the direction of Pu-ho, north of Mukden, saw the Russians in full retreat along the main road, and reported it to the divisional commander, who hurried up all 6 batteries of the divisional artillery, as well as Major Hijikata's battery of captured Russian guns.

They fired at the retreating Russians at from 2,500 to 5,000 yards, stopped many carts, and eight Russian guns retiring had many horses shot. The Russians drew the guns by hand, and came into action, but only fired a few rounds when four guns limbered up and retreated behind a village. They were next seen galloping north-west. All the Japanese guns let loose at them, and when the dust and smoke cleared, the retreating guns were seen to have been stopped. Another gun then ran the gauntlet, zig-zagging across the plain, and escaped. The remaining three guns fought where they were until the Japanese infantry were within 600 yards, and out of the battery of eight, seven guns were captured.

On this occasion the Japanese battery of captured Russian guns was short of ammunition, but sent out to the Russian wagons, which had been rounded up in front, and replenished their own limbers.

10TH MARCH, FUSHUN.

42. At the crossing of the Hun-ho, also on 10th March, when a fierce fight was going on between the 30th Regiment on the walls of Fushun, and the Russians on the heights to the north of it, two squadrons of the IIInd Divisional Cavalry crossed the Hun-ho, and emerging from some trees, started for the city wall about 400 yards away. They came under fire, and instead of galloping for the shelter of the wall, they hesitated for a moment, then turned and took cover in a dip of the ground, where the ponies of two mountain batteries were standing, hitherto unseen by the Russian artillery. 72 cavalry and 60 mountain artillery ponies were killed; the number of men hit they would not tell me.

HOSPITAL RETURNS MISLEADING.

43. According to few Japanese statistics available, from 7 to 15 per cent. of their casualties are said to have been caused by artillery fire. Hospital returns, however, are no criterion, as probably the proportion of killed to wounded is greater with shrapnel and splinters of shell than with rifle bullets.

ARTILLERY AT NIGHT.

44. Practical experience during the war is said to have shown that artillery can render great assistance in night operations.

Throughout the winter on the Sha-ho, I heard gun-fire every night, but could gather little of what took place, except that the Japanese sometimes lit bonfires for the Russians to shoot at.

The Japanese have added the following paragraphs to their manual of field artillery training:—

"Night firing is necessary to repel the enemy's attack, to threaten him, and to disturb his camp, or to raise the spirits of our own troops." Also

"The occupation of a position at night being especially liable to confusion and error, as far as possible, reconnaissance and arrangements to the smallest particulars will be made in daylight."

Russian writers give some examples of artillery having fired successfully at night by means of lanterns as auxiliary marks.

HEAVY ARTILLERY.

45. Now that heavy artillery has become part of our divisional organisation, you will ask whether it proved useful in Manchuria?

We had none with the 1st Army. It would have been impossible to have dragged it through the mountains.

Besides assisting the Field Artillery in gaining a superiority of fire, guns with a longer range than field guns would at times have been useful in making things unpleasant for Russian generals and observation parties on high ground overlooking the scene of action. I can think of many occasions where they might have been used in this way.

CONCLUSION.

46. If, on the whole, the effect of artillery fire was disappointing, I must own to having felt a similar disappointment in the stopping effect of rifle fire.

The Russian rifle shooting was below the average of European armies, but their infantry were brave men, and did not retire until driven out of their trenches with the bayonet. This war has taught me that resolute infantry can advance over open ground under heavy rifle fire with no wider intervals between men than two or three paces.

In conclusion, I would impress upon you the necessity, as exemplified once again by this war, of common-sense combined with discipline, organisation, and training. I would also have you to believe that the tactical employment and shooting of artillery has such a far-reaching effect on the operations of a division, of an army, or even on the fate of a nation, that only thoroughly trained officers should be put in charge of the complicated and expensive equipment, of which it consists, and of which there is necessarily only a limited supply. Partially trained batteries, like partially trained battle-ships, are only a danger to their own side.

Major-General C. H. OWEN (late R.A.):—It is rather formidable for me that I should have to commence the discussion to-day. I used to take part in this sort of thing years ago, but of late I have not been much accustomed to it. I felt perfectly sure that we should derive much practical information from this lecture, and I was only too glad to have

the opportunity of coming here. I heard that the reports of our officers in Manchuria during this great war had been sent down to Aldershot and to the Staff College; and I had the temerity to write to the War Office asking if I could see these reports, but I received a very curt refusal. I cannot myself conceive what was the object of the individual in the War Office in keeping such information from an officer of my standing, and treating me as if I was a sort of penny-a-liner, especially as a great deal of information with regard to this war can be obtained from foreign sources, as the lecturer has stated in his paper. Captain Vincent said, in the course of his interesting lecture, that a good many theories were made in the time of peace which had to be proved when it came to warfare. There are a number of officers even now in our Army, some very distinguished men, who held a theory founded on Lord Wolseley's dictum, "that the effect of artillery is more moral than actual—it kills but few." In 1889 I read a paper in this theatre, which, I think, knocked that notion on the head. I remember that Colonel Lonsdale Hale supported me on that occasion, and declared that he believed there was more use in artillery than the mere moral effect. If the only use of artillery was the moral effect, we might go back three or four hundred years to the days of Tartaglia, who gave a receipt for causing guns to make an exceedingly great noise and marvellous roar, which was achieved "by putting a piece of shoe-leather between the powder and the wad, and a little piece of quicksilver down the touch-hole." I make a present of that suggestion to those who believe that artillery simply has a moral effect on the enemy! I think what Captain Vincent has said in his lecture, and the experience of many other officers, should for ever abolish that stupid notion. It is founded on another popular notion, which I think is an equally foolish one. An engineer officer of great distinction, and a very clever fellow, wrote, about a year ago, in the papers, stating that the percentage of loss from infantry was 95 per cent., which left 5 per cent. for the losses caused by artillery and cavalry. That is a most absurd statement. What was it founded on? It was founded on a German return from the losses at Gravelotte. It did not, however, take Sedan into account, where the losses from artillery were very severe indeed. The statement was founded on hospital returns, which, as Captain Vincent has pointed out, are not at all trustworthy. When men are wounded by shell, they are often mangled, and die before they get into hospital. Besides, you must remember that in those days the Germans and the French were very inferior to ourselves in their artillery fire. The Germans had no shrapnel shell, and the French had an imperfect shrapnel shell with fuses for three distances only. Then it has also been stated with regard to the British artillery that "pipe clay and polish were supreme." I commanded batteries for seven years, and I can say that that is a libel on the force. The development of rifled arms to breech-loading, and to magazine-loading, has been so great that many people appeared to think before the South African war, that cavalry and artillery were useless. I have heard it said in our old lecture hall, that no artillery could approach within two thousand or four thousand yards of the enemy without being annihilated by rifle fire. The South African War completely upset that notion. But at the same time I am bound to say (I may be quite wrong) that there was so much long-range firing in South Africa that there was some reason for supposing that the moral effect was greater than the actual. There were three sieges lasting some months, and about half a dozen men were killed and wounded. Another point to which I wish to draw attention is, that when we re-armed our artillery I wrote a paper in the *United Service Magazine*, the statements

in which I am very glad to say are confirmed by Captain Vincent's lecture. The great idea then was to get a quick-firing gun and to adopt the French Rafale system; that was supposed to put everything else out of court, because a most effective man-killing projectile was used. If man-killing is the only object of artillery, I think you may as well do away with it. I think the idea of having one gun and one projectile is a mistake. According to my idea—it may be wrong, but what Captain Vincent has said appears to me to bear it out—we want a greater proportion of howitzers to search the ground, and for a good many purposes for which shrapnel is of no use at all. Everybody goes under cover now. Howitzers are wanted for use against villages and woods, exploding ammunition, destroying bridges, and a good many other things, for which shrapnel is of no use. I know there are great difficulties in using howitzers. Many people say howitzers were of little use in South Africa, and that lyddite was of no use. I say in reply to that, get a better howitzer and a better lyddite. I should like to ask Captain Vincent whether the Japanese or Russians had any howitzers that were really effective, and I should like to know if the Japanese powder, the shimose, was of a more satisfactory and more deadly composition than the one we use. I was very glad indeed to hear what Captain Vincent said with regard to long ranges. What do we hear with regard to ranges? We hear that the Navy have guns which range twelve miles. All I can say is, that if anybody likes to stand twelve miles off from such guns he would be perfectly safe. It is the greatest waste of ammunition to fire at such ranges, and unfortunately that sort of idea was encouraged in South Africa. It is a mistake to fire at long ranges, not only because the projectiles are less effective, but how can you tell what distance you go over or short of the mark? Of course, you may be able to tell how much you go wide. Supposing you are firing over 5,000 yards, from Southsea to the Isle of Wight, how on earth can you see where the shell goes, even with telescopes or anything else? Officers tell you that you must send men out on the flanks to observe the effect of the fire, but you cannot send them out five or six thousand yards. I do think that what Captain Vincent has said is thoroughly sound, namely, that you want moderate ranges. The greatest naval action of modern times was that fought between the Japanese and the Russians at Tsushima, and there the Japanese declined to fire at long ranges; they waited till they got within four or five thousand yards of the enemy. The sea was rough while the action was fought, but the Japanese gave a remarkable display of effective gunnery. In that action we find, from the reports that have been published in our own JOURNAL, that the greatest effect was done when the Japanese changed the nature of the shells, substituting a shell which contained a bursting charge of a composition which was most deadly, and swept everything before it. I should like to ask if the Japanese howitzers were satisfactory, and also if the powder they used, the shimose, was also satisfactory. A point which Captain Vincent has not touched upon is that of the supply of ammunition. According to what we can make out at home, there must have been a fabulous amount of ammunition used, because some of the engagements lasted three or four days. How did they get the necessary supply of ammunition? It is true there may have been pauses in the battles; but I should like Captain Vincent, if he is able, to give us some kind of idea of how the supply of ammunition was arranged for in both the armies. There is one other point to which I should like to call attention, which refers to a pet fancy of my own, and which I mentioned in a short article in the *Royal Artillery Institution Journal*. In the American War they tried shrapnel

from mortars at high angles. About thirty years ago I recommended that this should be tried in our own Service. With rifled projectiles a great advance has been made, because you have a burster at the base of the shell which increases the velocity of the bullets. My suggestion was pigeon-holed, as it was likely to be when I left Woolwich; but I have heard that it has lately been tried in India and at home with some success. I should like to ask Captain Vincent whether shrapnel at high angles was used by either side. The one great difficulty, it seems to me, with regard to the howitzer is, that it is not a howitzer but a mortar, and that with the range regulated by the charge you vary the velocity of rotation, which affects the accuracy of firing. I am exceedingly obliged to Captain Vincent, as I am sure you all are, for the information he has given us in his interesting lecture.

Major-General Sir GEORGE MARSHALL, K.C.B. :—I wish to say a few words in reply to a point which General Owen has raised, that the *rôle* of field artillery was not "man killing." That was very fully gone into at the end of the South African campaign. The evidence was taken of every officer, who served in command of a battery, as to the effect of artillery fire; and on that evidence, and on the result of years of experience, it was considered that for field guns there was only one projectile, a man-killing projectile; and that it was waste of energy, training and space to carry about a shell which had no man-killing effect, and which in field artillery had no effect in destroying *matériel*.

Major-General OWEN : I did not apply that to guns; I said it applied where the howitzers were to do the work.

Major-General Sir GEORGE MARSHALL : I thought you applied it as a general rule to the *rôle* of field artillery.

Major-General OWEN : No.

Major-General Sir GEORGE MARSHALL : As that is so, I will offer no further remarks on that point. Of course, we are going to have howitzers and heavy guns to accompany the field army. I hope we are going to have 5-inch guns throwing a 60-lb. shell, and that will be ample for dealing with villages and *matériel*. I think Captain Vincent said in one or two places that the lyddite shell from the field gun was not very useful. I would like to ask him if he has any reports from the Russians giving the effect of the lyddite shell on them? I think it would be useful if we could get the effect of the lyddite shell from field guns at the target end. I would also like to refer to the statement he makes that the Russians could not run up with their heavier equipment, and that neither can we do so with our 18-pounders. It is always difficult, even with the lightest gun. Even with our own old 12-pounders it was very difficult in heavy ground to run up without double detachments, but I think it is quite possible with a double detachment to run up the 18-pounder. Perhaps some officers who have been trying it practically at Okehampton will give us their views on that subject. Another point that we must consider is, that it is no use running up the gun unless you run up the ammunition wagon alongside it. You will always have to double-man the ammunition wagon. I do not see, however, any insuperable difficulty in running up even our 18-pounder gun. I know there is a greater proportion of weight on the wheels of the gun-carriage now, but I do not think it is an insuperable difficulty. We

have had to-day a lecturer who has expressed very broad-minded views, which, perhaps, has shortened the discussion. We always like, however, to have a good discussion. If there is little, I think it may be taken as a compliment to the lecturer.

The CHAIRMAN: I think it is partly due to the lecturer; but I think, possibly, the great number of experts here are rather frightened of one another.

Major-General D. D. T. O'CALLAGHAN, C.V.O., R.A.:—I did not intend to speak when I came to hear this lecture this afternoon. I think very much younger men than the three who have spoken should get up and discuss this paper; but perhaps, as your Chairman has hinted, the number of experts present has rather choked them off. There is one question I should like to ask with regard to the effect of shrapnel on villages. I have not had the good luck to see active service myself, but I have carried out a good many experiments with various kinds of shell at various things, being an experimental officer at Shoeburyness, and being also on the Ordnance Committee. I should like to give you two instances of Shrapnel effect. Percussion shrapnel was fired at some old Coastguard quarters at Lydd, and the shells went clean through and burst behind the brick walls, which were of a stout character—they were not the ordinary villa wall that one sees in England, but good stout brick walls built by the Admiralty. The effect inside was awful. I also remember firing at a ship's section with an 8-inch gun, on which occasion we tried to burst the projectiles in front of it with time fuzes. It was an unarmoured ship section of quite thin scantling. Two of the shells acted as percussion shells; the time fuses did not act, and the carnage among the wooden dummies inside the ship was a good deal worse than the effect of a common shell. I should like to ask, therefore, whether percussion shrapnel was used when they were firing at the villages. I had intended to point out that the surroundings have no effect in regard to complete or incomplete detonation of a high explosive shell. Judged by its fragmentation and from the absence of colour on the pieces, a high explosive shell will detonate just as completely in the middle of a fifty-acre field as it would in an iron box.

Colonel LONSDALE HALE, R.E.:—The questions which have been raised have interested me very much indeed, because I had some conversation with Captain Vincent last Sunday on this same question of the villages. In answering the questions as to the effect of shrapnel on villages, perhaps he will kindly tell us what the villages were like. For instance, he told me that one village which you see marked on the map consists of three farmhouses, and that you would find beyond the mountains on the north a fourth farmhouse, behind the mountains on the south a fifth farmhouse, and that these constituted the place. If we are to have an answer with regard to the character of these peculiar places, perhaps what Captain Vincent has said about shrapnel fire may be used wrongly in future theories and deductions. Therefore if he will tell us exactly whereof these villages and places consist we shall be very grateful.

Captain B. VINCENT, in reply, said:—The discussion that has taken place has drawn attention to several points with which I had not time to deal in my lecture. Dealing with the last question by Colonel Lonsdale Hale first, while it is fresh in my mind, I may mention that the names

of places presented a constant difficulty to us in Manchuria. Chinese ideographs have the same meaning in Japanese and Chinese, but the pronunciation in the two languages is entirely different. You will understand what I mean if you consider that the figures representing numerals in Europe mean the same thing in each country, though they are called by different names in each language. The Japanese always called places by their Japanese names. For instance, Chin-chia-pu-tsu was in Japanese Kinkahoshi; Pen-hsi-hu was Honkeiko; Yang-tsu-ling, Yoshirei; Mukden, Hoten, etc. Again, in addition to the standard Pekinese pronunciation of any name, we had to deal with the Russian version of the same, as used in their maps, and also that of the local dialect. Thus we were often confronted with four different names for some small out-of-the-way Chinese village of three or four houses scattered along a mountain valley. With regard to the howitzers, General Owen asked me what powder was used in the high-explosive howitzer shell. It was, as far as I can make out, very like our lyddite. It was a picrate; not the shimose powder which was used in the Navy, but something very like it. Like all high explosives used in shell, it was practically valueless unless properly detonated. To detonate high-explosive shell really effectively, an enclosed space like the inside of a house is necessary. It is no use exploding them in the open, even on stony ground; on soft ground they are still more valueless. General O'Callaghan asked about the effect of shrapnel on villages, and as to whether percussion shrapnel were used. Percussion shrapnel were constantly used against villages, and I saw many instances where the brick walls of the Chinese houses, which consisted of flat bricks about 9 or 10 inches thick, were pierced by percussion shrapnel and the opposite side of the rooms or furniture spattered with bullets. In one case which General Hamilton will remember, the old Temple at Mo-tien-ling was bombarded by the Japanese at 1,600 yards. The Temple was pierced by percussion shrapnel in about ten places. It was held by Russians at the time, but no Russian dead were found inside. I may mention that the Chinese paid so little regard to percussion shrapnel that they thought they were perfectly immune from danger by fire if they shut themselves up in the houses and locked the doors! General Owen also raised the question of the value of observation at long ranges. Observation, as you know, is to a large extent a matter of good glasses, and, still more important, the observation powers of the individual observing having been trained to know what to look for. This latter only comes with practice and experience. The distance at which objects can be seen depends not only upon powers of eyesight and quality of glasses used, but varies according to the atmosphere. In South Africa and also in Manchuria it was possible at times to see clearly very great distances—much farther than is possible in this country. I purposely avoided the question of ammunition supply in the field, because it is such a big one that one would want an hour to lecture on that subject alone.

Colonel LONSDALE HALE :—The Council would be delighted if you will.

Captain VINCENT :—It is perhaps enough if I state that in the Japanese organisation, excellent as it was, the supply of gun ammunition was the one weak point. Their ammunition columns were not entirely a success, and are, I understand, undergoing reorganisation at the present time, though what the modifications are I cannot say. Ammunition supply is a most difficult question, and the O.C. Artillery of the 1st Army, whose

most important function was to see to the ammunition supply, told Sir Ian Hamilton that every round fired on the way to Liao-yang took a year off his life. In the Japanese Army they had five divisional ammunition columns, three for the artillery and two for the infantry. They were officered and manned by artillery, chiefly of the reserve. At the battle of Nanshan, some of the Japanese batteries fired 500 rounds per gun in a day. Think what that means in ammunition supply. I think I am right in saying that the largest number of rounds fired in one day by one of our batteries in South Africa was 1,200, or 200 rounds per gun, fired by "B" R.H.A. at Magersfontein. The Japanese carried 412 rounds per gun, including that in the Divisional Ammunition Columns. We now carry 510 + 490 on the lines of communication making a total of 1,000. General Owen also mentioned the question of high angle shrapnel fire. At the long ranges which prevailed the angle of descent was necessarily very great. Howitzers also fired shrapnel, but chiefly high explosive shell. At the battle of Shen-tan-pu (called by the Japanese Hei-Kou-Tai) in January, 1905, an officer of the 2nd Division told me that the Russian 15 centimetre howitzers did very little damage. Their high explosive shell bursting in the open, broke up into two or three large pieces, which hurt nobody. The same shell, however, when used against villages would blow the houses down. General Marshall raised the question of running up 18-pounders, and reminded you that nowadays the wagon also has to be run up. I think battery officers will bear me out when I say it is a very difficult operation to run up our present 18-pounders and the wagons as well. It will take not only all the *personnel* of the section, as was the case with our 15-pounders, but the whole battery to move a gun and wagon any distance. For this reason I think artillery tactics have been greatly modified. We must be more careful where we plant our guns down, as it is very difficult to move them. I do not think, generally speaking, it is possible with our 18-pounders to run up from "indirect fire" positions to "direct fire" positions in the way the Japanese did with their lighter guns.

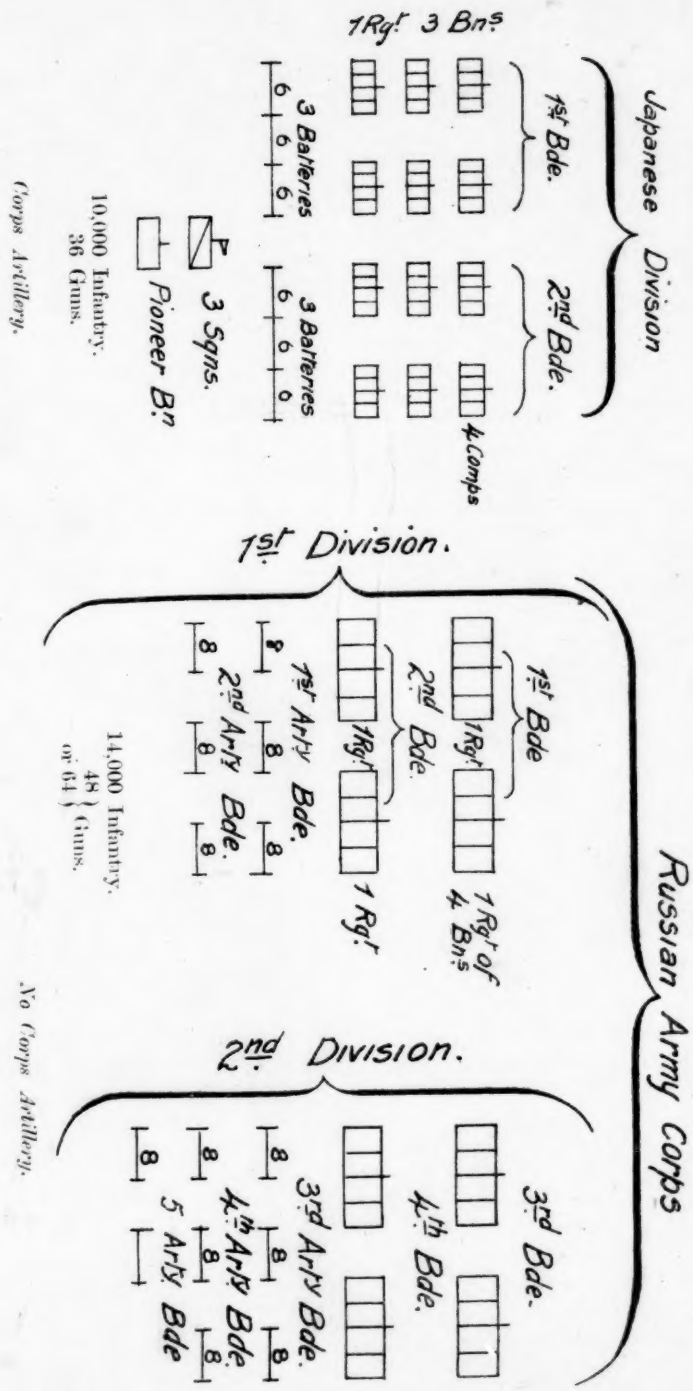
The CHAIRMAN (Lieut.-General Sir I. S. M. Hamilton):—As I gaze around and realise my audience, and see the number of great experts who are here, I am more than ever astounded at my own boldness as an infantry officer in accepting this position. I did not only come here to support my old subaltern, Captain Vincent, nor was I impelled entirely by my natural want of modesty; no—in part at least I have been inspired by a less personal motive. It is this: We have been trying very hard in the Southern Command to bring together the artillery and the other arms. We were able, for instance, on one occasion to fit out a distinguished artilleryman, now sitting in this room, with the training of an infantry brigade. I think it was considered a very rash and daring experiment at the time, but it turned out exceedingly well. We have also sent numerous infantry officers to do a turn of work with batteries, and that also has been very successful. Under these circumstances, I felt it only right that I should stand the ordeal myself and come before an audience which I guessed would be a technical one, and now I can only express the hope that you will remember I have come here rather to learn than to instruct, and that you will not expect anything very deep and scientific from an infantry officer, whose outside point of view may, nevertheless, occasionally have its own uses. With regard to the points that were raised, and which Captain Vincent was asked to answer, he has dealt satisfactorily, I think, with most of them. One unanswered criticism was to the

effect that the War Office had been very secretive about these Manchurian war reports. Well, the day was when I used to squirm if the War Office were attacked, but now my withers are completely unwrung. Perhaps I rather enjoy it—who knows? But in this particular instance I feel bound in common fairness to stick up for them, because I have reason to know that they are dealing with a very sensitive people, and nobody can tell but the War Office themselves the precise terms under which the Japanese gave opportunities for our reports to be written. I do not think there are any very deadly secrets in them, and, were it not for the consideration I have set forth, I would never raise my voice in favour of secrecy. For in a great democratic country like ours, the only way to get a thing done is, above all, to let your own people have the information even at the risk of foreign armies participating therein. Other armies, as a matter of fact, are far too conceited to take our information at present, so that you need not be very much afraid that they will turn our secrets to profitable account. As regards comparative losses by artillery fire and infantry fire, I do not think we need worry much about it, in face of the ground facts that we all long to have guns with us, and that, on active service, the infantry soon recognise that their artillery are, if not a death dealer to the enemy, at any rate a very effective life-saver to themselves. As regards ammunition supply, Captain Vincent has anticipated me by telling my story about the C.R.A. of the 1st Army and the pangs of anxiety he suffered when the firing grew heavy. The 1st Army moved through the mountains, and the ammunition supply was a terrible difficulty to them. We have to remember that the other armies were on the railway, and that facilitated the matter very much for them. As regards the effect of lyddite, about which Captain Vincent was asked several questions, I assure you it was not very easy even for us, who were on the spot, to come to any safe conclusion. After the battle of Liao-yang, a very distinguished officer of the Japanese Army told me, confidentially then, but I do not think it need be considered confidential now, that he believed the battle of Liao-yang had been won owing to high explosives. My own opinion, however, after thinking a good deal over it, is that that statement had better be put into the same category as the great admiration of the Japanese, as expressed in their Drill Book, for direct fire. I think we must take it as a pious opinion, and not by any means conclusive. "By their deeds ye shall judge them"—I think that is a correct quotation; and if you agree that the proportion of high explosives to shrapnel was very materially diminished as the campaign went on, that will give you a very fair line as to the comparative values of the two types of projectile. As to using high explosive shell with field guns, I must say that I, as a practical soldier, am dead against trying to have a little bit of everything for everything. The theorist makes provision of canister for cavalry; star shells for night; high explosives for villages; and when it comes to the push he ends by being thoroughly muddled up. I am sure that it is best to stick to our shrapnel where field artillery is concerned, and to trust to big guns and howitzers for what may be called exceptional effects. Turning to the lecture itself, there is one little place I marked where Captain Vincent says, "Before leaving this subject, I would impress upon you the necessity of the O.C. Divisional Artillery in the field, acting as an artillery commander in every sense of the word, and not merely as a Staff officer to the Divisional General." I am not sure that that phrase, if it is passed without comment, might not be taken somewhat to exclude the general commanding the division from an active, living responsibility in the placing and distribution of his own guns. If the C.R.A. of the Japanese 2nd Division

(and certainly Captain Vincent knows him, because he took his photograph) was a real personage, still more so was the Divisional General a very real personage indeed. I think it was because he spoke and acted in the name and by the order of the Divisional General that the C.R.A. struck Captain Vincent as being such a very real personage. I do not in the least wish in any way to diminish or minimise the responsibility and status of the Artillery Advisor to the General commanding, but it is at the same time necessary, I feel, to make it quite clear that no one can share the responsibility of the Divisional Commander himself in this matter, unless indeed the Army Commander intervenes. As a general rule, as far as an infantryman could judge, once the batteries in Manchuria were in action they fought it out more or less as batteries; but on one occasion at the battle of Liao-yang (and it was the only occasion during all that bloody fighting of the 1st Army that I saw it done) the whole, or nearly the whole, of the artillery of the 2nd Division advanced before the Russians were utterly routed, and whilst their guns were still firing. It is true they only moved a few hundred yards, but they did limber up, get out of their holes, and make an advance of some hundreds of yards. And what gave the impulse to that advance? Nothing less than a direct order by the Army Headquarters of the 1st Army! I remember the message; I remember the man who gave it, and Captain Vincent and I both know the young adjutant who took it. I watched it go; it went direct to the guns, and the guns moved forward. This was the only occasion also on which I saw the Headquarters of the 1st Army in any way perturbed or angry. They thought the guns were not supporting the infantry, and sent an order straight down. Of course, the messenger may have met the C.R.A. by his batteries, or he may not, but anyway he galloped straight down to the guns, and the guns had instantly to advance. I have told you this old incident of the battle of the Shaho to emphasise my point that, considering the guns make the framework of the whole battle, the commander cannot be relieved of his responsibility for laying the foundation of that framework. In all the detail work of posting, within very wide limits, and in the subsequent conduct of the fire action at periods when the Divisional Commander is otherwise occupied, the C.R.A. will find enough, and more than enough, to do. As regards the question of ranging, I suppose I may take it that the feeling of this assembly is that ranging with time shrapnel is the ideal towards which we must work. Seeing, however, the very unfortunate mistakes made by the Russians in ranging by that method, I doubt if our fuse is quite perfect enough yet to warrant us in deserting percussion. We have to work up to time shrapnel ranging, but I take it (I do not know what the feeling of the meeting is) that, although that may be the mark to aim at, we have not quite yet succeeded in making our bracket. I do not think I have anything more to say, except with regard to the very last words of the lecture, to which I should like to call your attention: "Partially trained batteries, like partially trained battle-ships, are only a danger to their own side." Now we are going to have a great lot of these batteries in England, and it behoves us, therefore, to scrutinise very closely the meaning of that phrase. I do not, I confess, like the look of it as it stands. I would prefer to word that sentence as follows: "Partially trained batteries, like partially trained battle-ships, are only a danger to their own side if they are expected to hold their own, gun for gun, against a regular artillery." I think we must be careful to permit no illusion on this subject to emerge alive from our lecture hall. Not a man in this room believes that a partially trained battery—let us say

boldly, one of our coming territorial batteries—can hold its own, with any prospect whatever of success, against a regular battery. On the other hand, let us be fair and reasonable and admit that three or four of these partly trained batteries would, after all, give even the best regular battery in the Service rather a warm time of it! So really what we come down to is (and here I speak merely as an infantry officer) that even a bad gun served by a raw detachment is a vast deal better than no gun at all. It now only remains for me to propose a vote of thanks to Captain Vincent for his lecture. I think myself that, setting genius apart which we have not got, the prime qualifications for a lecturer are experience and study. As regards experience, Captain Vincent has heard the roar of a thousand guns in action at the battle of Liao-yang; and he was on the theatre of operations at the battle of the Shaho, when fifteen hundred guns were fighting for all they were worth. As regards study, he is at the Staff College, and you have seen him and have heard him. I, therefore, hope that you will tender him a hearty vote of thanks.

TABLE SHOWING ORGANISATION OF JAPANESE AND RUSSIAN COMBATANT TROOPS.





WARS OF THE TURKS WITH THE GERMANS.

By Lieut.-General F. H. TYRRELL, late Indian Army.

Continued from December JOURNAL, p. 1508.

IN the midst of the general rejoicing throughout the Ottoman Empire over the re-capture of Belgrade and the success of the campaign, Sultan Suliman II. died and was succeeded by his younger brother, Ahmad II., equally feeble and incapable. The change was seized upon by the numerous officials whom Mustafa Kuprili had made enemies of by his vigorous crusade against corruption and speculation, as an opportunity to effect the Grand Vazir's downfall; and a palace cabal was formed for the purpose. Kuprili, hearing of what was going on, sent for the Aghas (colonels) of the Regular troops, and asked them if they would stand by him? and they swore that they would aid him to depose the Sultan, rather than allow the dismissal of their invincible Vazir, the defender of Islam, and restorer of the Ottoman Empire. Fortified by their assurances Mustafa Kuprili took a high tone with the Sultan and forced him to dismiss his unworthy favourites. While he was at Adrianople preparing for the campaign, he received an English envoy, sent by King William III., to endeavour to patch up a peace between the Sultan and the Emperor, in the interest of the coalition against France. Kuprili amused the envoy with proposals with the object of throwing the Germans off their guard; but he had firmly made up his mind to recover the lost provinces of Islam by force of arms. King William was able to do the Emperor a better service by replenishing the ranks of the Imperialist Army with 11,000 Irish soldiers, who had been brought over by King James II. to England to aid him against his Protestant subjects. After his flight they were interned in the Isle of Wight; being Catholics they could not be received into the British Army, and if they had been disbanded they would have rejoined King James's standard in Ireland.

King William solved the difficulty by selling them *en masse* to his Catholic ally, the Emperor, and as they could not be well expected to fight against the French allies of their old master, and against their own old comrades who were serving in the French army, they were sent to fight the Turks on the Danube.¹

The success of the late campaign and the fame of the Vazir attracted crowds of volunteers to the camp at Adrianople, anxious to obtain merit by serving in a Holy War. Mustafa Kuprili did not like to damp the ardour of the nation by declining their services; but this

¹This transaction explains the reference in the spirited ballad on the Eve of Fontenoy, by John Davis, the Irish Nationalist Poet, in the lines:

"For on far foreign fields, from Dunkirk to Belgrade,
Lie the soldiers and chiefs of the Irish Brigade."

crowd of undisciplined men, without officers or organisation, weakened rather than strengthened the army, at the head of which he set out in the spring of 1691 to effect the re-conquest of Hungary.

He crossed the Save at Belgrade and marched straight for Buda. The Grand Duke Ludwig of Baden had collected all the German troops available in Hungary and taken up a strong position at Salankaman (called by the Turks *Islankaman*), on the Danube, barring the road to Buda-Pesth. Five battalions of German infantry were on the march to join him, when the Vazir, by a rapid march, intercepted them. They made a good fight but were overwhelmed by the Turkish multitudes, and were all killed or made prisoners. Mustafa Kuprili and his troops were greatly elated by this first success, and, confident of victory, he led the army to attack the Germans at Salankaman. Though the Turks outnumbered the Germans two to one, Prince Ludwig did not shrink from the contest, and a pitched battle was fought. Its conduct resembled that of all the previous ones in this war; the frantic valour of the Turks proved vain against the serried ranks and iron firmness of the Germans and the murderous discharges of grape from their artillery. The fall of Mustafa Kuprili decided the fate of the day. Seeing his cavalry held in check, and his infantry unable to break the ranks of the Germans, he rallied the Janissaries and led them in person in a fresh charge. As he was cheering them on, a German bullet pierced his brain, and he fell dead on the spot. The *Tabal Khana* (military music) ceased to play, and the cry that the Vazir was slain ran through the Turkish army. Seeing the enemy pause in their attack, and waver, Ludwig of Baden ordered a general advance. The Turks passed at once from frenzied fury to frantic panic, and their whole army took to flight, hotly pursued by the German cavalry, who did severe execution on the fugitives. It was estimated that the loss of the Turks in the battle and the pursuit amounted to 20,000 men in killed and prisoners; the Germans had only 3,000 killed and wounded. The Turkish camp with all their guns, stores, and baggage and numerous trophies fell into the hands of the victors.

Some of the regiments of the German Army still keep the 19th of August as a fête day in memory of the anniversary of the battle of Salankaman, which was fought on that day in A.D. 1691.¹

The Emperor Leopold, when he heard the tale of the losses in the two engagements, observed that it would be an easier task for the Sultan to find 80,000 more men than for him to replace his 8,000 Germans. Ludwig of Baden, after his victory, contented himself with driving the Turks out of Hungary, and did not follow them across the Save.

The war now languished for two years. The Germans were too weak numerically to undertake offensive operations, and the Turks were cowed by their defeat at Salankaman. The Poles were still detained before the walls of Kaminiék; Peter the Great, satisfied with the acquisition of Azof was too busy with the internal reforms in his Empire to prosecute the war vigorously; the Venetians made no further progress on the mainland of Greece; Königsmarck had died under the walls of Negropont, and his death had caused the abandonment of the siege; the resources of the Republic in men and money were exhausted by the long war.

¹One of these regiments is the 3rd Baden Infantry, now the 111th German Infantry Regiment, which particularly distinguished itself at Salankaman.

The British and Dutch Ambassadors at the Porte were constantly occupied in trying to bring about a peace between the Emperor and the Sultan, while the French Ambassador was busy bribing the Vazirs and the Palace favourites to prevent any arrangement being arrived at. All through the summer of 1692 the German and Turkish forces faced each other across the Save and the Danube, without ever crossing except in small parties to raid or to harass the enemy's outposts. In the summer of 1693 the Grand Vazir, Buyukli Mustafa Pasha, led the Turkish Army into Transylvania to try and recover that province. General de la Croy, who commanded the German army on the Save, laid siege to Belgrade in order to draw the Vazir off from Transylvania, and his strategy was successful. Buyukli Mustafa abandoned the campaign in Transylvania and hastened to the relief of Belgrade. He made his way by forced marches through a difficult country and crossed the Danube just in time to save the place, for de la Croy had breached the walls and was preparing to storm. But as the Vazir's army was much superior to his own in numbers, he raised the siege and re-crossed the Save. The Turks harassed his retreat and captured four field pieces, and the Vazir announced that he had gained a great victory over the infidels. He did not venture to lead his army across the Save, however, but Khan Selim Girai crossed with his Tartar horse and ravaged the country. But returning through Transylvania the Tartars found themselves entangled in the defiles of the mountains, the passes of which were occupied by the German infantry, while the German and Hungarian cavalry closed in upon their rear. They hamstringed their horses and abandoned their plunder, and tried to escape over the mountains on foot. But they were intercepted by the German infantry. The Khan and the foremost parties cut their way through and escaped; the Germans closed in upon those following and killed or captured all of them.

The Grand Vazir, Buyukli Mustafa, was the third who had held that office since the death of Mustafa Kuprili two years before. He now went to Adrianople expecting to be praised and rewarded for his exploits, but the Sultan had heard the truth, and took the seals from him and gave them to Shám Tarabulús Ali Pasha (Ali Pasha of Tripoli in Syria). The new Vazir did not take the field in person, but sent a Seraskier to take command of the army at Belgrade for the campaign of 1694. The Seraskier crossed the Save into Hungary, but General Caprera who now commanded the Imperialists attacked him and drove him back across the river with heavy loss.

In 1695 Sultan Ahmad II. died and was succeeded by his nephew, Mustafa II., son of the deposed Sultan Muhammad IV. The new Sultan was a young man of spirit and energy, and he announced his intention of leading his armies in person, and of emulating the deeds of his glorious ancestors. He ordered the general rendezvous to be held at Adrianople in the spring, and he himself inspected the various provincial contingents as they arrived at headquarters. He used also to visit the different camps in the disguise of a subaltern officer of Janissaries, with his attendants habited as privates of the corps. One day he observed some gun-carriages in an unserviceable condition; he sent for the Topji-Báshi (Captain-General of Artillery) and demanded the reason. The Topji-Báshi laid the blame on the Vazir, saying that he had applied to him for the necessary funds to equip the artillery, but that he had refused the request. The Sultan thereupon put Ali Pasha to death, and ordered his corpse to be exposed for three days in

sight of the army. But it was generally believed that the affair of the gun-carriages was only an excuse for getting rid of the Vazir, in order to give the seals to the Sultan's favourite, Muhammad, nicknamed Almás, or the Diamond, from his singular beauty. He had been page to Muhammad IV., and had been brought up with the new Sultan; he was of Sclavonic extraction, being a Bosniak, and for this reason, and on account of his youth, he was disliked by the other Vazirs and Pashas.

The Sultan occupied himself personally with the recruiting and training of the army. He issued orders that gun, mortar, and musketry practice was to be regularly performed, whence we may infer that these essentials had hitherto been neglected by the Turks. As soon as the weather favoured the movement of troops he led the army to Belgrade, where he crossed the Danube, and broke the long blockade of Temesvar. The German Army in Hungary was now commanded by the Elector of Saxony, Augustus the Strong, whom the Turks dubbed Nal-Kyran (the horse-shoe breaker), because one of his favourite feats of strength was to straighten a horse-shoe with his hands. On the approach of the Turkish Army he summoned General Veterani, who commanded the German troops in Transylvania, to join forces with him. Veterani accordingly set out at the head of 7,000 men, and the Sultan, having intelligence of the movement through spies, resolved to intercept him, and marched with such speed that he surprised him when he was only one day's march from the camp of the Imperialist main army, neither he nor the Elector having any suspicion of the Turks being in the neighbourhood.

Veterani, preparing for the last stage of his march, suddenly found himself surrounded by swarms of Turkish horse, who prevented his moving until the Sultan arrived with the infantry and guns. The general formed his little army in squares and awaited the attack which was made on three sides at once; but the steady front and rolling platoon fire of the Germans drove back the assailants with loss. A second attack met with the same result. The Sultan met Shahin Muhammad Pasha flying from the foe, and cried out to him: "Would that they who gave thee the name of Shahin (Falcon) could see thee now like a crane drawing after thee a troop of fugitives." The Pasha, stung by this taunt, turned and rallied his men and charged again; but this time he was killed, and his followers again took to flight. The battle raged all day, but at the close of it the German ranks were still unbroken. Veterani was severely wounded and put *hors de combat*, but his spirit still animated his troops. As the Turkish attacks slackened they resumed their march, and finally reached the Elector's camp, carrying off with them their wounded general and all their guns; but they had to abandon their baggage and their camp equipage to the enemy, and they left 2,500 of their comrades killed and wounded upon the field. Of the Turks 10,000 are said to have fallen; but this is only the German estimate of their losses, doubtless an exaggerated one. The Beglerbeg of Rumili, and many other Pashas, were among the slain, and the Sultan was so impressed by the carnage among his troops, and by the firmness of the Germans, that he shunned the chance of a battle with the Elector's Army; indeed, he could never bring himself to attack the Germans again. He turned his back on Augustus and his army, and marched into Transylvania, which was now denuded of its German garrison; he wasted and plundered the country as he passed along. Augustus followed, but the German

Army moved too slowly to overtake the Sultan, who avoided an encounter by passing through the mountain passes into Wallachia, whence he re-crossed the Danube and took up winter quarters for his army at Adrianople.

Augustus opened the campaign in the spring of 1696 by renewing the siege of Temesvar. As soon as Sultan Mustafa heard of this he set out at the head of the army from Adrianople, crossed the Danube at Belgrade, and marched on Temesvar. The Elector raised the siege and advanced to meet him; he was anxious to fight, but the Sultan declined the proffered battle, and entrenched his camp. Augustus did the same, and the two armies remained watching each other from their entrenchments. The cavalry on both sides continually encountered each other in scouting and foraging, and there were daily skirmishes. The plains of Hungary again resounded to the shouts of charging Turkish Sipahis and Hungarian Hussars.

As the Turks would not accept his proffer of battle, the Elector Augustus resolved to attack their camp. It was covered on one side by thickets so dense that their leaders apprehended no attack from that quarter. Augustus set his Pioneers to work to cut pathways through the thickets, and the Turks kept such a negligent look-out that they remained unconscious of what was going on. As dawn broke their camp was assailed by the Germans emerging from the thickets. The Turks were taken by surprise, and a panic spread through the camp. The Sultan and the Vazir were aroused by the alarm and hurried from their tents; the Sultan, instead of making for the scene of conflict, started in the opposite direction; but the Vazir kept his head, and finding three battalions of the Sultan's Bostanjis (Park Rangers) drawn up to guard the Imperial Pavilion, he led them at once to the threatened quarter. These battalions had been newly formed by the Sultan for the war, and he had dressed them uniformly, the first in red, the second in blue, and the third in green. Almas now put himself at their head, and led them into the thick of the furious fight that was being waged on the confines of the camp. The Germans, on account of the narrowness of the paths through the thickets, could only traverse them in long files; and the head of their numerous columns were striving to gain ground to deploy under the attacks of the Janissaries and the Egyptian contingent of Mamelukes and Cairene Turks, whose quarters happened to be on that side of the camp. The arrival of the reinforcement under the Vazir decided the issue; the Bostanjis, though they had never been under fire before, charged with great courage, and their appearance animating the other troops, the Germans were driven back into the thickets, where they were unable to form, and they retreated leaving behind them twenty-four field pieces, which were captured by the Turks. The losses on both sides were heavy, and about equal.

Augustus after this drew out his army and again offered battle, but the Turks remained immovable within their entrenchments. After a few days' more the Sultan broke up his camp and marched away into Transylvania, as he had the previous year. Augustus did not pursue, for his German cavalry would not trust themselves out of sight of their infantry and guns. They could always beat the Turkish horse in a set charge, but they were no match for them in skirmishing or scattered fighting. The Sultan passed through Transylvania and Wallachia and returned to Constantinople, where he made a grand triumphal entry as if he had gained some great victory. The twenty-

four cannon and a few German prisoners swelled the triumph of his train. Though he was afraid to meet the Germans in the field, strange to say he still cherished the idea of re-conquering Hungary, as if kingdoms could be conquered without fighting for them; and he refused the good offices of the English and Dutch Ambassadors, who still hoped to mediate between him and the Emperor. Meanwhile, the favourable occasion had passed away, for the Emperor had made peace with the French King, and was now able to transfer his troops from the banks of the Rhine to the shores of the Danube.

Sultan Mustafa's courage and spirit rose high when there was no enemy in sight. He and the Grand Vazir were busy during the winter making great preparations for a new campaign in the spring. There was nothing to be apprehended from the Poles or the Russians, and the Sultan's Admiral, the famous Merzomorto,¹ had gained the upper hand over the Venetian fleet in the Archipelago, and the Sultan now ordered the keels of thirty-six new ships of war and galleys to be laid down in the dockyards of Constantinople, and a levy of eight thousand more sailors to be made from the maritime population. He spent the winter in augmenting and re-organising the army, and twelve thousand Yamaks or Reservists were called up to complete the cadres of the Janissaries.

Early in the spring he set out from his capital with great pomp and parade to take command of the Army assembled at Adrianople for the campaign. It mustered 135,000 fighting men, of whom 20,000 were Janissaries, and 4,000 Topjis and Jebejis (Artillery and Ordnance Corps). Shahbaz Girai, son and successor of the veteran Selim Girai Khan, brought a contingent of Tartar horse, and there was the usual host of camp followers. The Sultan led the army to Belgrade, where he had ordered a flotilla to be made ready to operate on the Danube. Here he called a Council of War, always a favourite resource of Turkish commanders. The Grand Vazir Almas was for seeking out and fighting the German field army; but Tekeli, who accompanied the Sultan, advised an invasion of Transylvania, promising to bring over the people to their side. The Sultan adopted this advice, and crossed the Danube into the Banat.

The German Army in Hungary, 46,000 strong, lay at Szegeidin on the River Theiss. Augustus of Saxony had been elected King of Poland, and had gone to take possession of his new kingdom; and the Emperor had confided the command of his army in Hungary to Prince Eugene of Savoy, with strict orders not to risk a battle with the very superior forces of the enemy. Eugene had served a long apprenticeship in war against the Turks; he knew their weak points well, was confident of beating them, and resolved, if opportunity offered, to disobey the Emperor's orders.

He had assembled his army and formed his magazines at Szegeidin, when he heard that the Turks had crossed the Danube he moved

¹ This man had been a successful Corsair, and was elected Dey of Algiers to defend that city against the French fleet sent to bombard it by Louis XIV. He was afterwards, like his predecessors Khair-ud-Din Barbarossa and Kilij Ali, made Capitan Pasha or High Admiral of the Ottoman Navy. He owed his peculiar *sobriquet*, according to some to his cadaverous appearance; according to others, to his having been left for dead in a sea-fight with the Christians.

down the right bank of the Theiss. The Turkish Army had made two days' marches on the road to Temesvar, when the Sultan heard of Eugene's movements, and feared that he might be aiming at the capture of Belgrade during the absence of the Turkish Army; he called another Council of War, and now adopted the opinion of the Vazir that the defeat of the German Army should be his first object. He therefore changed his route and marched for the Theiss, at the same time ordering the flotilla to come up the Danube from Belgrade. When the Turkish Army reached the Theiss near its junction with the Danube, they found 6,000 German horse and dragoons, whom Prince Eugene had sent on by forced marches, drawn up on the further bank to dispute the passage. They repulsed all the attempts of the Turks to cross the river till the flotilla came up, when the Germans were driven off with the loss of three hundred men, and retired on their main army, while the Turks crossed on a bridge of boats. The Vazir caused the dead bodies of the slain Germans to be collected and exposed to the view of the army. The Sultan now held a third Council of War, and it was there suggested and decided to seize the town of Peterwardein by a *coup de main* before the German Army, which was still at the distance of three days' march, could arrive to its assistance, and Shahbaz Khan Girai, with his Tartars, was despatched to impede its march. He set fire to the long grass of the plains and made the whole country between the Theiss and the Danube a smoking desert.

Peterwardein was too well defended to be taken by assault, and the Turkish operations were hindered by the Germans from an island in the river from which they had to be dislodged by the flotilla; and this had only been accomplished when, on the evening of the third day, Prince Eugene and his army arrived from Szegedin and encamped near the town. Their last march had been for nine consecutive hours without food or water, and threatened by the twelve thousand Tartar horsemen of Shahbaz Girai, who accompanied their march without venturing to attack.

The Sultan sent a message to the Khan desiring him to procure him some German prisoners, from whom he might learn the strength and disposition of their army; and the Tartars were accordingly ordered to capture some German soldiers. But as the German troops were still drawn up under arms, this was not an easy matter, and many Tartars lost their lives in vain attempts until at length some of them, getting into the rear of the army, managed to carry off a German foot-soldier. From this man the Sultan learnt that Prince Eugene's whole army was present, and that his magazines at Szegedin had been left but slenderly guarded.

Sultan Mustafa now called a fourth Council of War. There were present all the chief commanders of the army, Muhammad Almás the Grand Vazir, old Khoja Ja'far Pasha, who had held Temesvar for so many years against the Germans, and had fought through the whole of the long war, his namesake, Kuchik Ja'far Pasha, Miseli Oghli (the son of the Egyptian), who had been successful in a command against the Venetians, and Deli Balta Oghli, the Janissary Agha, who was reputed as the bravest man in the army. The Sultan sat in a recess screened off by a curtain, and listened without being seen or taking part in the debate. Almás, the Vazir, spoke first, and advocated giving battle to the Germans. If a hundred and thirty thousand Osmanlis, he said, could not beat forty thousand Germans, they might

as well make peace at once. The veteran, Khoja Ja'far, replied, saying that he had been in many battles with the Germans, and he observed that if they had room to deploy and manœuvre, they could always beat the Turks; he therefore advised that they should await the attack of the Germans within their entrenchments. All the other members of the Council agreed with this view. The Grand Vazir lost his temper, and said that men who were afraid of the Giaours were no true Mussulmans. Khoja Ja'far Pasha then begged the Sultan to draw aside the curtain and listen to what he had to say:—"Let me be kept here in bonds," he said, "and let the Vazir lead out the army to fight the Germans; if he return victorious, nay, if he do not within the space of two hours betake himself to a shameful flight, let my life pay the forfeit; but if he be beaten, let me be set at liberty."

The Sultan approved of the decision of the majority, and decided against fighting. Next morning Prince Eugene drew out his whole army in battle array before the Ottoman camp. Some of the Turks took the field without orders, and the Sultan sent his Chaúshes (serjeants-at-arms) to beat them back to their tents. The soldiers began to murmur openly at the cowardice of their leaders, and the Vazir represented to the Sultan that the army was in a most dangerous temper, and might mutiny if it were kept inactive; they took counsel together, and agreed to try to surprise Szegedin and capture Eugene's magazines there. The Vazir advised the Sultan to send old Khoja Ja'far Pasha back to Belgrade to command there, in case Prince Eugene should march upon that city; his real motive was to separate Khoja Ja'far from the Sultan, so that his own advice might prevail with the latter; but the Sultan, divining his object, said that he could not spare Khoja Ja'far from the army. The route was given out for Szegedin, and next morning the army set out along the same route that the German Army had traversed two days before. The Sultan left behind him Kuchik Ja'far Pasha with 500 horse, to observe the movements of the Germans, and to acquaint him with them. Next day he continued his march and reached the banks of the Theiss, near the castle of Zenta, where he encamped.

Eugene was not at first certain of the direction that the Sultan had taken; but as soon as he was assured of it, he set out in pursuit. He sent on his Hungarian Hussars, who surprised Kuchik Ja'far's camp in the night, captured him and some of his party, and put the rest to the sword, only two or three escaping from the carnage. One of these was the Pasha's Kiaya or Deputy, who rode breathless into the Vazir's camp at Zenta at dawn to tell him of the misfortune. The Vazir promptly had his head struck off to prevent the bad news reaching the troops; but presently some other fugitives came in, and then some Tartars arrived, who reported that the whole German Army was following them by forced marches. The Sultan immediately ordered the advanced guard, which had already started on the road to Szegedin, to be recalled, and the bridge of boats, which was in the train of the army, to be thrown across the Theiss in order to put the river as speedily as possible between himself and the enemy.

The bridge was completed by noon, and the Sultan was the first to pass over, and was followed by the whole of the cavalry and by one battery of artillery; but before any more could cross the German advanced guard had appeared on the scene, and had opened fire from some field pieces. The Vazir ordered the Janissaries to entrench the position, and they seized on the wagons of the train and of the camp

followers to barricade the entrenchment. The waggoners, struck with panic at some German cannon-shot falling among them, drove their beasts on to the bridge in such a crowd that it broke under their weight, and the crossing was interrupted; but it was still possible for men in file to cross on planks laid across. The Sultan sent repeated messages to the Vazir, bidding him send across the Janissaries and the guns at once; but Almás knew that there was no time to do so, even if the damage to the bridge could be repaired. And it was soon put quite out of his power to do so, for Prince Eugene, reconnoitring the Turkish position before attacking it, observed that the height of the banks prevented his guns firing on the bridge; he, therefore, made his pioneers cut away the bank and make a way to get some field-pieces down to the water's edge at a spot whence they could fire on the bridge. The Sultan planted the eight guns, which had crossed to his side, under the screen of some reeds to silence the German guns, or at least draw off their fire; but the Germans had the best of the artillery duel, and they soon smashed up the bridge and so destroyed the communication between the two halves of the Turkish Army.

The Vazir had dreamt the night before that he saw his predecessor, Mustafa Kuprili, holding out to him the cup of martyrdom, and he knew his hour was come. He assembled all the Pashas and reproached them bitterly for having refused to fight before, telling them that they would now be forced to fight at a disadvantage, whether they liked it or not. The entrenchments were unfinished, and were badly planned. Eugene had now completed his preparations for attack, and columns of infantry descending the high banks moved along the water's edge to take the Turks in rear on both flanks, while a general attack was made on the entrenchment, and the German guns commanded the ground on which the confused mass of troops and camp followers were huddled between the trench and the river. The Janissaries, furious at the mismanagement which had brought them into such a trap, burst into unanimous insanity, and fell upon the Vazir and Pashas and slew them all, not sparing one of them except their own Agha, Deli Balta Oghli, who survived only to fall a few minutes later by the hand of the Germans. They then fell desperately upon the advancing Germans, and a terrible hand-to-hand struggle took place, the Turks fighting like madmen, and the Germans giving no quarter.

The Sultan and the cavalry on the other bank looked helplessly on at the horrid scene of promiscuous carnage. Some of the Turks cut their way through the surrounding enemy only to be drowned in the river; only one man, Mahmud Bey, son of the Beglerbeg of Rumelia, who had been killed in the battle with Veterani, escaped by swimming his horse across. The Grand Vazir, 15 Pashas of three tails, and 27 of minor rank, 14,000 Janissaries, 3,700 Topjis and Jebejis, 7,000 Arnauts or Albanians, and a great multitude of irregular infantry and camp followers were left dead on the banks, or drowned in the river. The setting sun went down on the last despairing struggles of the Mussulmans, "lingering on the horizon," wrote Prince Eugene in his despatch to the Emperor, "to gild with his last rays the victorious standards of Austria."

The Germans had 6,000 men killed and wounded in the three hours during which the fighting lasted. The Turkish loss could hardly have been less than 30,000, and all their guns, baggage, and camp equipage became the spoil of the victors.

Sultan Mustafa and the cavalry witnessed the last unavailing struggles of their unfortunate comrades, and then fled from the banks of the Theiss with as much precipitation as if they had been beaten themselves, and made the best of their way to Temesvar. But in the darkness of the night they lost their way and floundered into morasses, where many were engulfed and drowned. The Sultan reached Temesvar with only a few attendants; the scattered troops came in by degrees, and he led them back to Belgrade. He never tempted the fortune of war again, and he was the last Sultan of the once victorious race of Othman who tried his hand at the trade of a soldier.

The Turks are fond of composing chronograms in which the numerical value of the letters in an appropriate sentence commemorates the date of an occurrence; and the following words gave the date of the battle of Zenta and death of Almás Pasha the Grand Vazir; "Nemcha Kurshunila fildi almási"; "The German hath cleaned the diamond with lead"; an allusion to a popular notion that lead corrodes diamonds.

After the victory at Zenta the German Army invaded Bosnia, and captured and burned Serajevo; but the Mussulman Kapitans and Beys assembled their retainers to oppose them, and elected one Daltaban Mustafa as their leader; he was a brave and capable man, and he instituted such a vigorous guerilla warfare against the invaders that they were fain to evacuate the country and re-cross the Save. Their retreat terminated the military operations of the campaign, and indeed of the whole war, which had now lasted for fifteen years; for the battle of Zenta¹ had given the *coup de grâce* to the Turks' hopes of recovering Hungary, and the discomfited Sultan was now anxious to secure the good offices of the English and Dutch Ambassadors to mediate between him and the German Emperor, who on his part, foreseeing the probability of a renewal of the war with France, was ready to accept the terms which he had refused ten years before. By a tacit agreement no hostilities were commenced by either side in the spring of 1698, while peace commissioners from the five belligerent Powers met at Carlowitz in Hungary to settle the terms of a treaty. The preliminary negotiations took a long time; Turks and Germans claimed precedence of each other, and the Russian positively refused to sit below the Pole. These questions were settled by the delegates meeting at a round table in a round pavilion, which had entrance doors all round it. The discussions were long and the points to be settled intricate, and the Peace of Carlowitz was not finally

¹ The story of the Battle of Zenta and of the previous campaigns of Sultan Mustafa II. is narrated in great detail by Demetrius Kantemir, Prince of Moldavia, who accompanied the camp of the Sultan and afterwards wrote a History of the Ottoman Empire. A full and particular account of all the principal battles and sieges during the course of this long war is given by Count L. F. Marsigli, who was a prisoner in the camp of the Grand Vazir Kara Mustafa at the siege of Vienna, and who escaped during the flight of the Turkish Army, in his work, "Stato Militare del Imperio Ottomans." He afterwards accompanied the Imperialist Army in Hungary, and his book contains plans of all the battles fought between the Turks and Germans, showing the dispositions of the forces on both sides.

signed until 1699. By it the Turks gave up Hungary and Transylvania to Austria, the fortress of Kaminiek and the adjacent district to the Poles, Azof to the Russians, and the Morea to the Venetians. They retained Temesvar in the south-east of Hungary, and regained possession of Athens and of the other towns conquered by the Venetians on the mainland of Greece.

This was the first time that the Osmanlis had ever yielded up any of the territory of their Empire to an enemy. That land, which had for long been Dárul-Islam, and where the Azan (call to prayer) had been daily heard, should fall into the hands of the infidels, and that Mosques should be converted into Christian churches seemed a horrible sacrilege to the true believers. Sultan Mustafa became unpopular, and a few years later he was deposed by the Ulema and the Janisseries, and his brother Ahmed III. was placed on the throne in his stead.

The treaty of Carlowitz finally delivered Germany from the nightmare of Turkish invasion. The subsequent wars of the Emperor with the Sultan were rather Austrian than German; they were waged in lands far remote from the territories of the Empire, and had for their object the aggrandizement of the dominions of the House of Habsburg rather than the furtherance or defence of the interests of Germany.

The Ottoman Empire became from this time forward an object first of contempt and then of solicitude to the great Powers of Europe, who henceforth regarded the Sublime Porte as a pawn on the political chessboard, to be moved by the astute diplomacy of the Cabinets at Paris or London. Now commenced the long struggle of the subject races of Greek and Slave for religious equality and national liberty, which has continued to our own time, and which constitutes the political problem known as the near Eastern question of the present day.

(To be continued.)

NOTES UPON
COMPANY AND BATTALION TACTICS AND THE
EMPLOYMENT OF ARTILLERY IN BATTLE.
BASED ON THE EXPERIENCES OF THE RUSSO-JAPANESE
WAR OF 1904-5.

By Captain A. DEGTYAREV.

Translated from the *Voïennyi Sbornik*.

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TRANSLATOR'S PREFATORY NOTE.

DURING the war of 1904-05, a Russian infantry regiment of the Guard, Grenadiers, and line consisted, as now, of four battalions, of four companies each.

For tactical purposes the company is divided into four sections, numbered from 1 to 4, the 1st and 2nd sections forming the 1st, and the 3rd and 4th the 2nd half company.

Regiments are commanded by colonels, battalions by lieut.-colonels, and companies by captains.

The two senior officers after the company leader command half companies, and also the 1st and 3rd sections, the two next in rank the 2nd and 4th sections.

Squads are commanded by non-commissioned officers.

The combatant war establishment of a company is three or four officers and 240 non-commissioned officers and men; of a battalion, 17 or 18 officers and 958 non-commissioned officers and men; and of a regiment, 79 officers and 3,874 non-commissioned officers and men.

During the early stages of the war, units were seldom up to their establishment, the average strength of a battalion being about 700 bayonets.

Previous to 1905, all East Siberian rifle regiments consisted of only three battalions; in October of that year, however, they were raised to four battalion regiments, with a combatant war establishment of 68 officers and 3,851 non-commissioned officers and men. In 1906 the war establishment of the regiments was again slightly increased.

Machine gun companies of eight guns were formed during the war for five East Siberian rifle divisions, for the divisions of six Army Corps, and for five rifle brigades of the line. By a new Army Order of December, 1906, a machine gun detachment of four guns (two guns in peace) is in future to be attached to each regiment of infantry and independent rifle battalion.

As regards artillery, the organisation during the war was not uniform. The East Siberian artillery was organised in brigades of four batteries (32 guns) each. The batteries were numbered from 1 to 4 within the brigade.

For tactical purposes, the brigade appears to have been sometimes divided into two divisions of two batteries each.

A brigade was attached to each East Siberian rifle division of 16 battalions, and bore the same number.

The artillery brought from European Russia was organised in brigades of either six or eight Q.F. batteries. The brigades of six batteries were divided into two divisions, each of three batteries; brigades of eight batteries were divided into three divisions, one of two batteries, and two of three batteries each. A brigade was attached to each infantry of 16 battalions, and bore the same number.

There was no corps artillery.

The eight-gun organisation of field batteries appears to have been generally adhered to up to Liao-yang.

Of the 32 East Siberian field batteries in the theatre of war at the beginning of 1904, only 23 were armed with the Q.F. gun, 1900 pattern; the remainder were equipped with it during the progress of the campaign. The new drill book for the Q.F. gun was not issued until four months after the commencement of the war, and it was not until the troops had been in the field for a considerable time that telephones were provided for the artillery.

Further details as regards the organisation, drill, equipment, and tactics of infantry and artillery will be found in the "Handbook of the Russian Army, 1905," "Russian Field Service Regulations, 1904," and "Extracts from the provisional Drill Regulations of the Russian Q.F. field artillery, 1905" (translated by the General Staff).

All dates referred to below are "new style."

1. THE FIELD SERVICE REGULATIONS.

The experience of the late war has shown that the fighting formations of our infantry, and our methods of employing artillery in battle do not satisfy the requirements of modern warfare, and that, in these respects, our field service regulations are defective.

It is not my object to point out defects in the regulations, but merely to show how necessary it is that formations and methods, which have been proved by experience, and which fully stood the test of battle in the late war, should be embodied in the regulations.

It is the spirit of the regulations, rather than the letter, which should be thoroughly understood. And this understanding should not be confined to the commanders, but should also permeate the rank and file.

Russian soldiers, with the splendid nerve that history has proved them to possess, have fighting qualities immeasurably superior to those with which the soldiers of other nations are endowed. But their lack of individual development renders it imperative that they should all be taught reading and writing, and that, in addition, as many as possible of them should be instructed in fighting formations and tactical methods, which vary so continually with circumstances.

These methods and formations should be thoroughly mastered by the rank and file in peace time; it is too late to learn in war, when knowledge can only be acquired at a heavy price.

Every innovation, however beneficial, introduced in an army in time of war, is received by the commanders with distrust, and the troops, to whom it is strange, regard it with suspicion. Moreover, being new and untried, it cannot in any case confer the full advantage which might otherwise be derived from it.

The regulations cannot contain everything. At the same time the saying: "the scantier the regulations the stouter the soldier" is not an apt one. I consider it necessary that the field service regulations should include:—

1. Some practical lessons drawn from the late war by our detachments of trained scouts;
2. Instructions regarding attack and retreat in successive lines;
3. Formation for night attacks;
4. Retirement at the double.

And, in addition, I consider it most desirable to issue to the troops a special manual drawn up in the most concise form and couched in language easily understood by the rank and file, who should be made to learn it. Its contents should include scouting and outpost duties, and the action of small parties working under the command of non-commissioned officers, &c. In it there should be neither words of command nor formations, but only instructive matter, illustrated by many varied examples drawn from military history.

Such a pamphlet might, I maintain, develop the fighting efficiency of the soldier, even though it might be to a small extent only. One can hardly calculate upon a knowledge of such subjects as scouting, or the duties of outposts and detached forces being imparted to the rank and file by means of officers' lectures, even during duty hours; neither can one expect that commanders will teach their units methods other than those laid down in the regulations.

Many incidents in the late war proved that once a company lost its officers it became disorganised, and fell an easy prey to any handful of daring hostile troops. For example, on the 10th March, during the fighting on the Hun Ho, two companies of the Stryetensk Regiment, which had lost all their officers, blundered into the village of Fon-shan and were shot down by a score or so of Japanese. The standard of military knowledge possessed by the non-commissioned officers upon whom the command of a company devolved in this instance speaks for itself.

2. THE SUPREME IMPORTANCE OF FIRE, AND THE NECESSITY FOR CHANGING OUR ATTACK FORMATION.

The perfection of the modern rifle, combined with the efficacy of machine guns and hand grenades, seldom admits of a successful bayonet attack by large masses of troops. On several occasions the enemy, though in superior strength, did await the bayonet attack, thinking that by so acting he had a better chance of victory with less loss to himself.

The enemy's repeated successes, due entirely to the development of rifle and artillery fire, indicate the necessity for some change in the fighting formation of our infantry. The necessity for such change is still more patent when the action of our infantry under artillery fire is considered.

It is beyond doubt that, in the Japanese Army, as well as in the armies of Western Europe, with the exception of the French Army, the balance of opinion is in favour of fire action. All the fighting in the late war, from Chiu-lien-cheng (the Ya-lu) to Mukden, inclusive, attended by such heavy losses on our side, failed to give us sufficient experience in the proper use of the bayonet. There were occasions on which we took the enemy by surprise; there were also collisions between single companies or detachments, generally accidental. As an example, may be mentioned the affair of the 11th October, in which the Morshansk Regiment and two battalions of the Zaraisk Regiment captured the village of Yen-tou-niu-lu by a night attack, without firing a shot, and bayoneted more than 1,000 Japanese. But, in this case, fortune favoured us, and the Japanese had barely time to seize their weapons.

The bayonet work of the Tobolsk and other regiments at Liaoyang, and of the 18th East Siberian Rifle Regiment on the Sha Ho may also be mentioned. Equal energy and daring were displayed, but the result was different; the Japanese were not taken by surprise, and the Tobolsk men lost from rifle fire 50 per cent. of their strength, and the 18th East Siberian Regiment more than 500 men in three minutes.

It is practically certain that the bayonet attack, as the final act in a battle, will always retain its importance. But the concentration under modern rifle fire, according to our present tactical methods, of masses of troops in sufficient strength to deal the enemy a decisive blow, has no advantage which can counterbalance the losses it entails. Moreover, in dealing with an opponent who is aware of his fire superiority and strives to maintain a maximum of fire up to the very last stage of the battle, we should reply by fire. Here, however, we are hampered by the recognised custom of allotting only half the rifles to the fighting line, instead of at once acting in accordance with requirements; the result is that the firing line is weak in rifles and cannot develop sufficient fire. As an example, let us take a regiment, i.e., four battalions. As a rule two battalions are placed in the fighting line and two in reserve. Each battalion follows the same procedure, and allots two of its companies to the first line, each of which details a half company to the firing line. The result is that there are altogether, in the firing line, 400 rifles out of a total of 3,200. This number cannot be regarded as sufficient.

When moving to the attack, all the reserves, including the regimental reserve, will always suffer loss, sometimes to a serious extent, without, however, inflicting any loss on the enemy. As the crisis of the fighting approaches, the firing line must be reinforced in sufficient strength to enable it to subdue with its fire the fire of the enemy, and to bear, if necessary, the brunt of the bayonet attack. In short, the nearer the enemy is approached, the more necessary, or rather obligatory, it is to reinforce the firing line. The company supports and battalion reserves will be the first to be drawn upon, and, as reinforcements from these sources will be carried out within the zone of effective rifle fire, there can be no doubt that the men will suffer serious losses whilst joining the firing line or prolonging the flanks.

Would it not, therefore, be better to allot at the very outset a sufficient number of rifles to the firing line, and to have the nearest reinforcements also in line formation?

It is obvious that by such an arrangement:—

1. The losses caused by rifle fire will be minimised.
2. Time will not be lost in the deployment of battalion reserve companies into line under effective rifle fire.
3. The reinforcement of the firing line will be easier.

Against this the following objections have been raised:—

1. That such a method of reinforcement would inevitably cause a mixture of companies, with the result that officers and men would not know each other.
2. That a unit acting by itself should have an adequate reserve to meet emergencies.
3. That the point of attack might be changed during the progress of the fight, and that, to meet this case, a suitable reserve would be required.

I will deal below with the question of mixing companies, when considering the question of company supports. The reserves, under our existing system of deploying only half the rifles, are already too large. For the rest, I can only say that he would be a bad commander who would change the point of attack when within 1,500 to 2,000 paces of the hostile position under modern rifle fire. Such a course should be rendered unnecessary by the preliminary reconnaissance of the enemy's position, and the operation orders, issued before the fighting commences, should clearly indicate the point of attack.

I will now discuss the action of the company and battalion in battle, and indicate their best fighting formations, as deduced from the experience of the late war.

3. FIRE ACTION.

If ammunition is plentiful, it is possible for the modern rifle to cause the enemy serious damage at distant ranges even up to 3,000 paces; but firing at this range must be directed upon areas, or at big targets, such as columns of troops, transport, etc.

At ranges from 2,000 to 2,500 paces firing is by volleys alone; serious loss to the enemy cannot be reckoned upon at this distance, but the moral effect is important. At 1,200 to 1,500 paces ordinary individual fire commences and develops as the enemy approaches. From 400 to 200 paces rifle fire reaches its utmost intensity. At this stage the machine gun attains immense importance; being a machine, its nerve never falters, and it literally mows down the advancing lines. When to this is added the fire of the defender's artillery, which ceases its duel with the opposing guns and transfers its attentions to the attacking infantry as soon as the latter develops its attack, the losses of the firing lines, on which the stress of the fighting falls, becomes so heavy that it will be difficult to count upon the success of the attack.

Our offensive movement to secure command of the line of the Sha-Ho will serve as an example. It cost us more than 40,000 men. The battle of Shen-tan-pu furnishes an equally striking illustration. These, the only instances of offensive action on our side, clearly show what heavy losses the attacking force may suffer from fire. The fighting formation of our infantry, with its columns of reserves exposed on the field of battle, is greatly to blame for such losses. Should one of such

columns (whether company supports or battalion or regimental reserves) show itself for a few minutes, the chances are that it will be prematurely shaken, both morally and physically.

The best formations must be deduced from practice in the field, confirmed by the test of battle.

4. THE COMPANY IN THE ATTACK BY DAY.

Company and battalion offensive tactics by day have been expounded in detail in the pamphlet by A. Ryabinin, entitled "Company and Battalion Tactics, Based on the Experience of the Russo-Japanese War." To make my arguments clearer I give the following extracts from Ryabinin's work:—

"In offensive action the change from march to fighting formation takes place at the point where the zone of the enemy's artillery fire is supposed to commence. The intermediate formation, namely, that of battalion column, is not always suitable; in close ground, in fog, or in the gloom preceding dawn, deployment for action will almost always take place from column of route. In level country, of course, the preparatory formation of battalion column is necessary. Thus, in hilly country, a company may come under artillery fire when in column of route, or after it has deployed into line. In the zone of artillery fire the sole care of the commander is to save his men from loss. The amount of loss depends upon the accuracy of the enemy's fire, the density of the column, and the absence of dead ground. The first condition depends upon the enemy, the second upon ourselves, and the third upon the ground and our ability to make use of it. Such action as lies within our power to perform should be carried out by the company commander without loss of time in seeking instructions from his superiors, or in reflection. To minimise losses it is necessary to thin out the formation, either by increasing its depth or its frontage, or both. Facility of control, and compactness, are best attained by the double process. The most suitable formation for the purpose, not laid down in our field service regulations, would be company column (*i.e.*, column of sections), which facilitates control, and admits of the company being readily assembled, or the adoption of a fresh formation. The advance of such a column would not be difficult, and could be easily adapted to the ground. During the halts the distances between sections can be regulated so that the best use may be made of cover.

"It would hardly be convenient to extend the whole company into one line in the zone of artillery fire, since in that case control would be difficult, an even advance of the line would not be easy, change of direction would be slow, and the company commander would have no reserve in hand wherewith to meet emergencies; whereas, in a column of sections, the leading line has reserves in the sections behind it.

"The thinning out of a column by increasing its depth can only be resorted to in exceptional cases; for instance, when a defile or narrow strip of ground has to be traversed under artillery fire. In such cases the depth of the column may be increased very considerably. It is the same when retiring fighting, because the main factor—artillery fire—does not change in character.

"In a column of sections, the sections either advance simultaneously or successively at conventional distances, closing up on ground that is not much exposed to fire, and traversing at a run fire-swept spaces in groups of from three to five men. As soon as the company

enters the zone of hostile rifle fire its task is to prepare the way, by means of fire, for the final blow, and to deliver it with the bayonet. Fire has, however, acquired such importance in recent years that the enemy may often be dislodged from his position by fire alone. In spite of improvements in artillery, rifle fire holds the first place in inflicting loss upon the enemy, and is the best weapon to employ during the attack. In the fighting at Mukden, rifle and machine gun fire accounted for 85 per cent. of the total casualties, artillery for 8 per cent., and the bayonet for 7 per cent. Theoretically, the zone of rifle fire is more clearly defined than that of artillery fire. The latter depends upon the type of gun used, the relative positions occupied by the artillery and infantry, and the nature of the ground; the former is limited by the range of the rifle and the configuration of the ground. The company commander should adopt the requisite fighting formation in good time, i.e., as soon as the limit of a zone is reached. In the zone of artillery fire alone his sole care should be to avoid loss; in the zone of rifle fire he should endeavour to prepare the way by fire for his decisive blow, and to save his men as far as possible.

"To ensure the defeat of the enemy, good fire positions, with an ample field of fire, are necessary, and for the prevention of loss there should be folds in the ground or natural cover; if these do not exist, entrenching must be resorted to. Field fortification goes hand in hand with tactics, and a knowledge of manœuvring with the aid of the spade is essential. Entrenching by the firing line is employed even during the attack. The loss of time involved is compensated for by a reduction in casualties, the result being that the company can be led up to the enemy, not in a shattered condition, but in a fit state to deliver the final blow. The Japanese, when attacking, dug trenches on their successive fire positions. We shall doubtless have to do the same. The trench vacated by the firing line is occupied by the supports. The counter-attack is the best means for repelling the attack, and it is more advantageous to meet the counter-attack in trenches. The number of successive fire positions depends entirely upon the configuration of the ground, the distance of the enemy, and the stubbornness of his defence. Under a heavy fire progress will be slower, and more time will be required for the preparation of the blow; but determination will overcome all obstacles.

"The question arises whether each company should have its own reserve, or whether whole companies should be extended in the firing line, the battalion reserves only being retained. Those who have commanded companies in action are in favour of having their own reserves. The company is gradually thinned out and broken up, and has to occupy this or that point, or to thicken or prolong the firing line.

"If the firing line is reinforced from a battalion reserve, the mixture of men of different companies is inevitable. The result is, that officers and men do not know each other—a distinct disadvantage. A mixture of men belonging to different sections of the same company cannot, however, lead to any misunderstanding. In my opinion, it is better for a battalion to keep one of its companies in reserve and extend three in the firing line with their own supports, than to extend two whole companies and hold the remaining two in reserve. The three-line system provides a powerful firing line and a more extended front, thus reducing losses and causing a larger number of officers to take part in controlling the fire of the firing line.

"At long ranges (1,500—2,000 paces) it is difficult for the whole line to advance together. At Hou-Ta-Ling the Japanese, when attacking our positions, had to traverse a ravine under our fire. The range from our trenches was 1,200—1,400 paces. At first the Japanese crossed it in lines of from 20 to 30 men, but our fire compelled them to send their men across in groups of from 3 to 6 men, and these massed themselves behind some rising ground in front. In the fighting on the Hun-Ho, on the 10th March, the same thing happened, but of this I will speak later. These examples show that even at such ranges as 1,200 paces it is impossible to move forward the whole of the firing line at once; the assembly of troops in a position nearer the enemy must be done by groups, and even by moving one man at a time at ranges between 800 and 700 paces.

"In the absence of a convenient fold in the ground or of a suitable covered position for the firing line, the latter has to advance over level ground. This is the opportunity for the spade. Volunteers may have to be called for. Each of these would run forward, ply his spade vigorously, and throw up some cover, making his shelter pit broader in front than would be necessary for himself alone, so that a second might join him and perform the same service for a third, and so on. If there is any kind of cover in front, time will be saved by traversing the intervening space at a run in groups of from 3 to 4 men, under cover of fire.

"There remains to be said a few words on the most suitable fighting formation for a company within the zone of rifle fire. The basis of such a formation is the section in line, which is not cumbersome and does not lose its elasticity in the sense of its adaptability to the ground. When the column reaches the zone of rifle fire, the company commander, being still in doubt as to the situation, tells off one or two sections to form a firing line. This formation of a firing line from column of sections is very simple; some visible object is named as the point of direction, and the leading section then merely increases its distance from the head of the column. The remaining sections, acting as supports, will, when advancing, make use of such cover as was previously occupied by their leading section."

I agree in general with the views of the author of the pamphlet as regards the fighting formation and action in battle of a company; but I think that, as a fighting formation, the column of sections does not meet requirements, and that it is more suitable for a battalion in the 2nd line within the zone of artillery fire.

A company column of double sections would meet fighting requirements much better, especially in the zone of rifle fire. It would be just as easy to deploy for action from a column of this kind as from a single-section column, *i.e.*, merely by increasing the distance of the leading double section from the head of the column. The double-section column has, moreover, the advantage that it at once provides a sufficient number of rifles in the firing line. I have taken part in actions as both company and battalion commander, and I frequently observed that the company commanders did not send merely a single section into the firing line; it is too small a unit for the purpose.

A company commander generally tells off half his company for the firing line, even before the situation is clear.

I am also unable to share the opinion of the author of the pamphlet on the question of company supports. This question, in the case of a company acting with its battalion, is a debatable one. My own

opinion, as that of a company commander who has taken part in both offensive and defensive actions, is that company supports in that case are altogether superfluous. When a company is acting with its battalion, the main point is to develop the maximum amount of fire, in order to beat down the enemy's fire as soon as possible; a company's supports, in addition to weakening the fire of their company, would, being necessarily near the firing line, merely suffer useless losses. Flank companies must, however, have their own supports, a special duty of which is to guard against daring attempts on the part of the enemy to enfilade the firing line; for this purpose it is better to detail small parties from the company supports than to take men from the firing line, where their whole attention should be devoted to their front. A battalion detailing two whole companies to the fighting line would provide a sufficient number of rifles for the firing line, and still have a powerful reserve in hand. As stated by A. Ryabinin, some company commanders raise the objection that reinforcement of the fighting line from a battalion reserve will inevitably result in a mixture of men from several companies, with the result that neither officers nor men will know each other; but surely similar conditions will prevail on the final fire positions and in the bayonet attack. A vigorous attack on a stubborn foe will cause the leading companies to lose many of their men, and thus to become mere skeletons. There will then be a mixture, not only of companies, but also of battalions. The important thing, from the point of view of organisation, is that the units should still be fighting under the colours of their own regiment. In short, the mixture of companies is unavoidable, because the reinforcement of the fighting line on the final fire positions will always be from the battalion reserves, which will be brought up in exceptional cases on a flank, but more generally in the intervals between units.

All wars have shown that, in the case of a mixture of companies, the fact of officers and men being strangers to each other is not so very important. As an example, I may mention that, at the end of the war, the 18th East Siberian Rifle Regiment had not a single one of its original company commanders left, some companies having changed theirs five or six times.

It is far more important to have a reliable and intelligent body of officers to furnish leaders for the company in action. The importance of the presence of an officer at the decisive moment lies in his setting an example of individual courage, and whether he be the company's own commander or an officer from another company, it is his example which will carry the men with him.

To finish my remarks about the fighting formation of a company I will mention a fact which has been confirmed by all the actions in the late war, viz., that the heaviest losses fall to the lot of the even numbered sections of the companies in the fighting line. This results, of course, from the unsteady fire of the enemy; the jerk of the trigger causes the rifle, though aimed at the centre of the firing line, to throw to the right, which means that of the first half company usually deployed by the company commander, the 2nd section loses most heavily. At close range the first half company is reinforced by the second, and the latter, whilst in the act of reinforcing, has been observed to lose most of its casualties from the 4th section. A practical way to remedy this is to leave intervals of from 30 to 40 paces between sections in the firing line.

5. THE BATTALION IN THE ATTACK BY DAY.

Battalion fighting is also dealt with in Ryabinin's pamphlet. It is, however, treated too briefly, the author limiting himself, apparently, to the use of lines of company columns in the zone of artillery fire.

The battalion is a unit which it is possible to direct, but not to command, in battle; its employment in action should, therefore, be considered in greater detail.

In the general battle formation the battalion may be employed either independently, or in the fighting line (1st line), or in reserve (2nd line).

When acting independently, a battalion generally details two or three companies to the fighting line and keeps the remainder in reserve. The best formation for reserve companies in the zone of artillery fire is column of sections, and column of half companies in the zone of rifle fire. It is impossible under modern conditions to move the companies in battalion reserve in line, as we tried to do at the commencement of the war.

As a matter of fact, para. 294 of the Field Service Regulations recommends that, before the charge, the reserves should be led up to the firing line by companies in line. This method of assembling sufficient numbers to deal the enemy a decisive blow with cold steel may entail such heavy losses as to render the attack a failure; and, even in the most favourable circumstances, the battalion will scarcely be able to pursue the enemy.

In reply to this, it may be urged that the spirit of the regulations should be followed, and that commanders, interpreting the regulations in a sensible manner, should teach their troops methods other than those laid down therein. Actual experience has shown, however, that most units were taught according to the letter, and not according to the spirit, of the regulations; and it has required much bloodshed to demonstrate the necessity for the introduction into the regulations of more definite instructions.

In my opinion companies in battalion reserve entering the zone of rifle fire should be in line of half-company columns, and that the leading half company of the battalion reserve should systematically replace losses in the firing line opposite the point of attack, thus enabling fire to be maintained in all its intensity up to the decisive moment. The reinforcement of the firing line, and the replacement of its losses to ensure full development of fire, so necessary before the delivery of the bayonet attack, will be particularly easy with such a formation. If the battalion is acting independently, or in the 1st line, the reinforcement of the firing line will devolve upon the battalion reserves, which will have their lines ready for the purpose. All that the battalion commander will have to do will be to name the direction and objective. This will prevent loss of time in deployment, during which serious losses might occur. Moreover, one of the psychological effects of battle is that men, when subjected to fire, are increasingly eager to throw themselves into the fighting the nearer they approach the enemy; they instinctively desire to reach a solution as quickly as possible. It is most important that this fact should be recognised, because it facilitates the reinforcement of the firing line, provided that the necessary arrangements are made.

By such means the firing line will always be provided with a sufficient number of rifles, and will therefore be better able to subdue the enemy's fire. Being sufficiently thick, it will the more easily bear

the first shock of the bayonet attack; in any case it will force the enemy to suspend his fire, and will thereby facilitate the advance of the succeeding lines. The delivery of repeated attacks will also be facilitated. Waves of lines, each stronger than the preceding one, will be continually pressing forward, and it will be possible to maintain the intensity of fire at the same time.

The basis of battalion formations is the "reserve column."¹ But experience in war has shown that adequate cover for such columns is difficult to find; a column of this kind has only to expose itself for a few minutes, and it will be shattered both morally and physically.

I agree with Ryabinin that the normal formation for a battalion in 2nd line in the zone of artillery fire is one in which the companies are kept separate, each company being in column of sections.

The same battalion formation may be adopted with the companies in column of half-companies.

This latter type will be even better as regards diminution of losses from artillery fire.

The distances and intervals between companies and between the sections of a company may be varied according to the nature of the ground.

At a distance, battalions in reserve advancing in such columns will have the appearance of parallel lines and produce a formidable impression. This was particularly well illustrated in the fighting on the Hun-Ho on the 10th March, in which the 2nd Corps took part. There the open valley of the Hun-Ho, which separated the combatants, reaches in places a width of over 2½ miles, and there was not the slightest chance of obtaining any natural cover for the reserves. The advance of the Japanese was observed at 9 a.m., and our outposts, posted along the river, withdrew to the heights bordering the valley on the north. Scarcely an hour had elapsed before the enemy's infantry appeared to the south, at a distance of between 2,500 and 3,000 paces, advancing in parallel lines, 12 to 18 in number, with a frontage of 1,200 paces. As soon as the zone of effective rifle fire was reached, the advancing troops halted, and the firing line opened fire, partly individual and partly by volleys. A further advance was then made by rushes, carried out successively by small parties with a frontage of 200 paces. The strength of the parties making the rushes was gradually diminished as our trenches were approached, until, at 1,000 paces, rushes were made by groups of a few men only. At the last fire positions the firing line was systematically replenished by single men running forward from the leading lines of the reserves, and was thus kept supplied with a sufficient number of rifles, in spite of enormous losses, to enable it to maintain the full intensity of fire. At 1,000 paces machine guns, carried by hand (with belts holding 30 rounds each), made their appearance in the firing line. Their presence at this stage was bound to have a crushing effect upon the defenders. This method of advancing by battalions, which I also saw repeated in other battles, appears to satisfy fighting requirements to a large extent, for the following reasons, viz.:—

1. The losses incurred will be certainly smaller than under our system of advancing with a firing line and reserve com-

¹ In the "reserve column" each company is in column of sections; the 1st and 2nd companies are abreast of each other in 1st line, and the 3rd and 4th companies are similarly placed in rear of them at close intervals and distance. (*Trans.*)

panies in line. By day it will only be possible to bring up the reserve companies unobserved under suitable conditions of ground, and a company in line exposed to modern fire for a few minutes will be prematurely demoralised by serious losses. The defender will always select a position with an adequate field of fire, and make arrangements to neutralise all dead ground. The advance and assault will, therefore, take place in view of the enemy. The plan of having the reserves in extended lines under artillery and rifle fire was adopted by our troops, particularly during the second half of the war in 1905. As an example we may quote the retreat of the rearguard of the 5th East Siberian Rifle Division on the 8th March, from the village of Ku-Chia-Tzu. Six companies of the 18th East Siberian Rifle Regiment had to retire $1\frac{1}{2}$ to 2 miles across an absolutely open valley under shrapnel fire from 12 field guns. Having no artillery, they were unable to inflict any damage on the enemy. As soon as the order to evacuate the position was received, they were sent back from the village of Ku-Chia-Tzu in extended lines, and retired in this formation during an hour under artillery fire, from which they lost only 46 killed and wounded. The majority of the shells fell between the lines; well-directed shots, striking a line, generally put from one to three men out of action, but, in lucky cases, caused no damage at all.

On the 25th April and 21st May, during the reconnaissances in force at Chang-Tu-Fu and Koyusnia, the battalions of the 5th East Siberian Rifle Division attacked in extended formations. During the first half of the campaign, battalions manœuvred in closer order, and suffered much under fire. The danger of coming under artillery fire in a formation which exposes troops to serious loss therefrom will in future necessitate a direct change from march to fighting formation, *i.e.*, without first forming reserve columns.

2. The handling of a battalion in 2nd line, formed in column of extended lines, will present no difficulty, because, as a matter of fact, the line will be commanded in action by the company commander, who has learnt all the details connected with such work in peace time, the battalion commander only exercising general control.
3. The fact of the battalions in reserve advancing in extended lines will render it difficult for the enemy to estimate their strength.
4. Firing at a formation of the kind indicated must be directed at areas, as there will be no clearly defined target.

The formation is, however, deficient in power to resist a cavalry attack from a flank; but cavalry is not very effective on broken ground, and in open country its advance will be observed sufficiently far off to enable the requisite measures to be taken in time.

(To be continued.)

INTERNATIONAL ARBITRATION.

Translated by permission from the "Marine Rundschau."

(Continued from December JOURNAL, p. 1527, and concluded.)

ARBITRATION IN MODERN TIMES.

WHEN we come to modern times we find arbitration treaties and clauses, and cases of arbitration much more numerous. The relations of the Powers with each other are far more complicated, and the peoples of different countries are penetrated by a sentiment of a community in law and a solidarity of interests. Everywhere treaties of commerce, postal, telegraph and money conventions, conventions for the protection of copyright, artistic and industrial, and the regulation of International traffic have been concluded. Some common International administrations have been formed, the Telegraphic, Monetary and Postal Unions, the Metrical Systems Union, the Union for the transmission of goods by rail, the Union for the protection of industrial property, for that of literary and artistic works, the Union for the publication of Customs tariffs.

The progress of the policy of arbitration treaties corresponds very closely with the development of the interests which find their expression in these Unions, until it seems to have produced, with the Hague Convention of 1899, a new era for the development of the sentiment of solidarity between nations.

The participation of the Powers in arbitration treaties and clauses has been very unequal during the course of the nineteenth century.

The arbitration treaties display nothing of a general character. They relate to certain definite subjects of litigation. England and the United States have won distinction by taking the lead in this mode of settlement. In 1862 there occurred a dispute (the "Alabama" affair) between these two nations, which was of the greatest importance for the development of arbitral jurisdiction, of which special mention must be made.

The fitting out of cruisers in English ports after the War of Secession had commenced in the United States in 1861 and the toleration of England, which permitted them to leave the English ports to take part in the naval operations of the South, was the cause of the dispute between Great Britain and the United States, known under the name of the "Alabama" question. The protests of the Government at Washington against this open breach of neutrality by the English authorities remained without result. At the conclusion of the war the Government of the United States again took up the question and demanded from Great Britain reparation for all the damage inflicted by these cruisers on American commerce. The dispute assumed a menacing character in consequence of the attitude of Great Britain and war seemed inevitable. After the United States had refused to ratify a convention concluded by the

representatives of the two countries on the 14th of January, 1869, an agreement was concluded on the 8th of May, 1871, at Washington, by which the dispute was to be submitted for settlement to an Arbitration Court. The tribunal was first to ascertain if, during the War of Secession, the English Government was to be held culpable, in respect of these ships, of a breach of International Law, and for the arbitral decision three new rules were to be taken into consideration by which for the future the signatory Powers were to be bound.

The tribunal, composed of five members, one representing Great Britain, the United States, Italy, Switzerland and Brazil each, sat at Geneva from the 15th of December, 1871, to the 14th of September, 1872. The result was the award by which England was obliged to pay an indemnity of 15 millions of dollars (£3,125,000).¹

This award calls for notice, and has led to much critical discussion. "Assuredly," remarked Geffken, "the acceptance of the rules proposed by the Washington Government, rendered certain in advance the condemnation of England."

The true significance of the Geneva decision is in the example set by two powerful States in a dispute where interests essential to each of the two parties were in question, and in the next place in the fact that this event has become the point of departure of a profound movement in public opinion; a movement which sometimes it is true, oversteps the object, but which will be kept within reasonable limits by the practice of International life.² This movement has, since the date of the Geneva award, stimulated certain Governments to have their disputes settled by an arbitral tribunal, on condition that their essential interests are not brought into question by it.

In order to throw light on the sort of disputes which have recently been settled by Courts of Arbitration, we quote some important arbitral awards cited by Bonfils, partly from Ronard de Card.³

- (a) *Boundary Disputes*.—Arbitration by the German Emperor, 26th of October, 1872, between England (the Dominion of Canada) and the United States. The point at issue was the interpretation of the Treaty of Washington of the 15th of June, 1846, which fixed the line of demarcation that, according to Great Britain, passed down the centre of the Straits of Rosario, according to the United States, by the Straits of Ilaro.
- (b) *Territorial Disputes*. — Arbitration was appealed to to settle the dispute between Great Britain and Germany on the subject of Lamu Island, which lies on the East Coast of Africa, in the jurisdiction of the Sultan of Zanzibar. The Belgian Minister of State, Baron Lambertmont, was the arbitrator, and decided on the 17th of August, 1890, against England.
- (c) *Disputes on account of the Seizure of Ships and their Cargoes*.—(1) The Peruvian ship "Maria Luz," having fallen in with very bad weather took refuge on the 28th of May, 1872, in the Japanese Port of Kanaganda. She

¹Perels, "Das internationale öffentliche Seerecht der Gegenwart."

²Bonfils, "Le Droit des gens."

³"Les Destinées de l'Arbitrage."

had 225 Chinese coolies on board. The ship was seized on the charge of being engaged in the slave trade; the coolies were released from their obligations and sent back to Shanghai. Peru remonstrated. An Arbitration Convention was concluded, and the Emperor of Russia, chosen to arbitrate, decided, in May, 1875, that the Japanese Government could not be held responsible for damages on account of the seizure of the "Maria Luz," because it had acted in good faith, in accordance with law and custom, and without violating general International rules or any special convention. (2) A dispute arose between France and Nicaragua, in 1874, on account of the seizure, in the port of Corinto, of arms and ammunition which had been embarked on the French ship, "Pharos." Numerous disputes were the consequence of the first. By an arbitral convention, the settlement of this quarrel was relegated to the French Court of Cassation. The two Chambers together decided in July, 1880, against the Nicaraguan Government, which was condemned to pay an indemnity to the captain of the "Pharos."

- (d) *Dispute over the Right of Navigation.*—Some differences of opinion arose between Costa Rica and Nicaragua in regard to the interpretation of the treaty of April, 1858, which regulates the navigation rights of the two countries on the River San Juan. The President of the United States acted on this occasion as arbitrator.
- (e) *Disputes over Fishing Rights.*—The Government of the United States claimed the right of forbidding foreign fishermen to capture seals in the Behring Straits even outside American waters. Some English ships, which had sealskins on board, were seized in the open sea by United States cruisers, taken to Sitka, and declared lawful prizes. An exchange of Notes took place between the Cabinets of London and Washington. The settlement of the dispute seemed likely to be very difficult, until the English Government proposed to the United States to submit the case to an arbitral tribunal, and an Arbitration Convention was signed in 1892. The decision, which was given in August, 1893, set forth that the pretensions of the United States to the sovereignty of the Behring Sea could not be recognised. The tribunal determined the relations between the United States and Great Britain as riverain States of the Behring Sea, without admitting any restriction or reserve. The great importance of this decision lay in the provisions established by the arbitral tribunal which were to apply even beyond the limits of the English and United States waters, and which had for their object the protection of the seals on the high seas. As was to be expected, these provisions occasioned some difficulties up to quite recent times, because they touched on the question of *mare liberum*, and other Powers had no interest in recognising the competence of the arbitral tribunal.

In January, 1904, Germany had an opportunity of testing for herself the usefulness of an International Arbitral Tribunal. The award of the Arbitral Court of The Hague in the Venezuela affair in February, 1904, bore favourable testimony to the advantages of putting in practice International Arbitration.

England, Germany and Italy had compelled Venezuela, by military action, to recognise the demands of their countries. The Powers which had taken part in the blockade claimed a right of preference over the other Powers, and in particular for their demand of 30 per cent. of the Customs dues of the ports of La Guayra and Puerto Caballo, which Venezuela had placed at their disposal in satisfaction of their claims. The Powers who had maintained a pacific attitude—Belgium, Spain, the United States, France, and Mexico—claimed, on their side, equal rights over the receipts of the Customs.

The Arbitration Court recognised at once the privileged right of the Powers which had taken part in the blockade to obtain satisfaction without any restrictions. It is an appreciable advantage to the German capitalists; they will get their money back again in two or three years, instead of having to wait twenty. They owe this success, primarily, to the practical ability of the arbitral judge.

The tribunal, in recognising the right of the belligerent Powers to retain the advantages acquired by force, seems to have acted in contradiction with its essential principle. In fact, one may conclude for the future from this arbitral award that the tribunal is not altogether destined, at least provisionally, to decide on all International disputes, but that it is rather a diplomatic tribunal of First Instance and a Court of Appeal for secondary causes.¹

In the Morocco affair, the German Government saw in a new conference of the signatory Powers to the treaty of Madrid the means for arriving at a pacific solution of the conflicting interests. It was not a question of the arbitral tribunal, because it was not one of a dispute between two parties, but of foreign private interests, menaced in their entirety. It was, more than ever, a case for a Conference.

The White Book runs thus in Article 158: "A Conference is an expedient which can hurt no reasonable sensibility, because it is a question merely of the employment of a means which is often made use of."

III.

THE POLICY AT THE PRESENT TIME OF ARBITRATION TREATIES.

In the course of the last few years the number of permanent arbitration treaties has increased so much that there are now but few States which have not concluded some. In the form they take, all these new treaties are modelled in accordance with the first, the Anglo-French Treaty of October 1903. They admit as public law what the Hague Convention has established as International Law and lay down that the disputes which ought to be brought before the Court of Arbitration at The Hague must touch neither vital interests, nor questions of honour, nor the interests of third parties. The disputes must be of a juridical nature or relate to the interpretation of treaties. It is a narrow limit for the competence of the arbitral tribunal.

By the side of this treaty there are certainly others, where in the interests of peace every restriction in regard to the nature of the

¹ *Kölnische Zeitung* vom 2 January, 1905.

disputes has been withdrawn. For example, the Treaty of February, 1904, between Denmark and Holland, according to which all disputes are to be submitted to the Hague Tribunal.

One sees from that how the different position of some States leads them to take up a completely different attitude towards the policy of arbitration.

Those most interested in the creation of an Arbitral Tribunal are, naturally, the small States. If the essence of a State is to be a Sovereign Power, as a generally recognised definition has it, it concerns the neutralised States less as States than as groups, which are maintained by the international equilibrium of the Powers. For this reason arbitration is more in use among the smaller States, as with them vital interests do not often clash. Neither Belgium nor Switzerland are placed by neutralisation in a state of disarmament. But they have manifestly the right to appeal to arbitration, because they have been neutralised.

On the other hand, the Great Powers are not less interested in an institution which has for its object the maintenance of peace with the help of Public Law, but they have so many vital questions which, if the solution is deferred, can bring about a more disastrous state of affairs than even a war waged at the right moment, that the absence of an arbitral tribunal may often be considered an advantage for a Great Power which is governed by strong and energetic rulers. There are, in spite of the common interest which both great and small Powers have in the placing of International Law on a sound basis, absolutely divergent vital interests, the determining of which at the bar of International Justice is only possible if the individual characteristics and needs of States resemble each other to the same extent as do those of the citizens of the same State. This time seems to be yet far distant from us.

The declaration of Switzerland, published less than three years ago, is of special interest. The Swiss Federal Council addressed a message on the 7th January, 1905, on the subject of the ratification of Arbitration Treaties concluded with Belgium, Great Britain, the United States, Austria-Hungary, France, Sweden, and Norway. This message ran as follows:—"Like all small States, we have to suffer from the abnormal situation in which we are placed by the rivalry of the great military Powers, the continued increase in armaments, and the expenditure imposed upon us in order to assure our safety and the power of being able to fulfil our obligations as a neutral State. The interest of the small States is to favour the setting up of institutions which extend the power of the law and strengthens peace; one of these institutions is certainly the Arbitral Tribunal. Such are the considerations which have induced the Federal Council to conclude the seven Arbitration Treaties mentioned above."

In this message the situation of the small States in presence of the question of armaments is clearly laid down. The mention of the small States is honourably linked to the development of works of peace, and "their territory has been for a long time past, with the cordial accord of the Powers, the centre where great pacific undertakings of international interest have had their birth."¹

¹ Le Chevalier Deschamps, *L'organisation d'un tribunal international*. M. Deschamps is a Belgian Senator, and a Member of the Hague Court of Arbitration, who presided at the Conferences of 1899.

If now one turns one's eyes from the efforts of the small States to look back on the actions of the great, which have so often led to grave conflicts, we can understand better the value of arbitration if we subject to examination the causes of some recent wars.

According as it concerns the interest of a prince, of a party Government, or of a nation, one speaks of a war as that of a Cabinet or of a people. While the time of Cabinet wars may be completely past, it is an assertion that need not be accepted without examination, because a wrong policy or social troubles may lead to a declaration of war as easily to-day as it did at the time of a declaration of war by Elizabeth of Russia or by the Girondins, without the vital interests of the nation being at stake in the war or its being made by the free will of the people.

A policy of arbitration has, in truth, for its object to avoid all wars where the vital interests of a nation are not in question; but it is evident that there is nothing more difficult to decide than the question of whether a vital interest is or is not affected.

The study of recent wars enables us better to estimate the possibilities of the causes of war at the present day.

The Crimean war was acknowledged to be a war of supremacy; so also the Austrian-Franco war of 1859 was one of a question of power. Similarly in the Turkish war of 1876, in the Greek-Turkish war, in the Chino-Japanese war, and in others; none of them were wars for existence.

The war of 1866 was a struggle for supremacy in Germany; the war of 1870-71 has been called by some a war of jealousy; nevertheless, it was only by arms alone that the States of the Empire reached in 1866 the idea of Empire, and it was only by a great war (the war of 1870-71) that a great people worked out its own salvation. No arbitration could have brought about a similar result.

In the Spanish-American war, and above all in the Boer war, the beaten parties fought for existence against the supremacy of the adversary. But these wars did not break out in consequence of vital questions, but by the popular wish to dominate. In similar circumstances compulsory arbitration might prove itself an obstacle, without exercising any salutary influence on the progress of the community, if the petty States, devoid of strength, continue their own separate lives.

Who, in the Russo-Japanese war, fought at first for existence and honour? The Russian expansion towards the Pacific Ocean was not an expansion of the nation of urgent necessity, but the exercise of a far-sighted, energetic policy. On the side of the Japanese one recognised rather a people's war, because the nation, in consequence of the over-population of old Japan, saw itself exposed to social maladies; a war which had cost great sacrifices had been already waged for Corea, and the idea of war was popular. Finally, there had awoke in the Japanese an energetic and healthy fanaticism of race which coincided with silent but ardent hopes for the development of the Yellow Race.

It is not by means of some soldiers and merchants that the distant and extensive countries claimed by Russia would be able for all time to remain Russian territory, since one must admit that her adversary would have conquered and colonised Corea without war through the great force of expansion, which carries in itself a natural right to translate itself into action. If, then, we concede

to the Japanese nation the right to develop its power, it will be difficult even for an historian of the future to dispute the presence of a vital question as the cause of that war. It is still more difficult to decide this question in face of a war before it has been submitted to an Arbitral Tribunal.

Again to-day, the world-policy of Christian civilised States is under the continual influence of the possibility of a war of revenge on the European Continent. Although a sentiment of vengeance, which is not Christian, could never be a just cause of war, yet such passions often become uncontrollable, to the detriment of the people they dominate—when viewed in the light of history and policy—and the Government is compelled in certain circumstances to yield to the violent pressure of a confused and troubled public opinion, although from the economic point of view even victory would entail considerable sacrifices. Thus one sees actually how, by a bloody war, the hatred of some nations has accumulated for future ages a capital of hostility against the outcome of which Arbitration will be finally powerless.

The Hull conflict sufficiently shows what weight the frame of mind of a nation still has, when the question at issue is not one of life or honour. The limits of this essay prevent us from elucidating still further the effect of imponderable matters before the declaration of war; but we have sufficiently established how difficult it is to decide before the first blow, if the question in dispute is a vital one.

In any case, the Arbitral Tribunal, if it is made compulsory, will constitute in a measure a lightning-conductor for many of the causes, objects, pretexts, and inclinations for war which now exist.

CONCLUSION.

A glance at Europe disunited to its own injury, at English Imperialism, the efforts of the Pan-Americans, at the slow awakening of the Yellow Race, with its tremendous latent power, shows us vital questions of dimensions so great that nothing like it has been known in the previous history of the world.

History commences with the struggle of everyone for his own hand; then came the struggle of family against family, then of race against race, now of nations against nations. As far as human prevision can go, there have been reserved for the future more far-reaching struggles, although they may be more rare. If, at the present time, the policy of arbitration seeks to smooth away the disputes of nations in a pacific fashion, the considerations above-mentioned show that situations arise in which it is impossible for a nation to submit to the will of others, whilst on the other hand, one cannot ignore that the sentiment of the solidarity of States, which have identical interests, is strengthened by International jurisdiction. But whatever may be the results reached by the edifying work of some societies and certain periodicals for the diffusion of pacific ideas, of semi-official Congresses, so-called universal Congresses, the celebrated "Institut de Droit International," the Hague Arbitral Tribunal, the Peace Conferences, which in a not far distant future may result in work rich in blessings, the arbitration movement none the less hides a danger if it is to hamper civilised Christian nations in the full development of their defensive power.

REMARKS BY GENERAL SIR IAN HAMILTON,
K.C.B., D.S.O., COMMANDING-IN-CHIEF,
SOUTHERN COMMAND, ON THE TRAIN-
ING OF THE TROOPS DURING 1907.

(Communicated.)

CAVALRY AND HORSE ARTILLERY.

IN addition to the Royal Scots Greys, which now belong to the command, the 7th and 8th Hussars, together with H and K Batteries of Royal Horse Artillery, carried out their training this summer on Salisbury Plain, and took part in the September manœuvres. As the horses of the Royal Scots Greys had been worked very hard during the Scottish manœuvres in July, it was thought expedient to give them an easy time during August. The regiment was therefore left practically at the disposal of its own commanding officer until September, when it was broken up for employment as divisional cavalry with the columns of both the southern and eastern commands. In this capacity the squadrons rendered good service, and if occasionally their leaders seemed, and indeed undoubtedly were, more eager to bring off a fight than to send back information to their column commanders, still this fault, serious as it is, is after all less dangerous than the exaggerated prudence which was commented upon last year. The fighting spirit may be calmed and controlled by the whistle of a few bullets, which remind the leader of his true responsibilities and of his own slow and patient infantry who are relying on him for information, whereas the same significant sounds may easily transform hesitation to attack into that type of discretion which cannot be accounted the better part of valour.

Owing to the fact that the 7th Hussars had recently returned from a tour of foreign service, their horses were many of them too young to be fit for hard and continuous work. Added to this the whole of the horses seemed rather light in condition. The training of the regiment was thus somewhat unfavourably affected throughout their stay in the southern command.

The 8th Hussars were able to take full advantage of the facilities for cavalry training of all sorts which are afforded by Salisbury Plain.

The work performed by these two cavalry regiments and the brigade of Royal Horse Artillery during the manœuvres was good, although it must be considered unfortunate that, owing to the necessarily limited field of operations, the opposing mounted forces had to begin the campaign with their patrols practically in contact. Opportunities for scouting and reconnaissance were thus reduced to a minimum.

It was in the battle tactics of the cavalry that the most striking change from the methods of 1906 was observable. There was no longer even a trace of the fault then animadverted upon; the fault, namely, that "where the conditions were not favourable to charges in open or close order, there was a tendency to hang back or look on, even although the infantry conflict might have reached a most critical stage." On the contrary, in the manœuvres of this year, the cavalry took their full share of the fighting; sometimes in the form of shock tactics, sometimes dismounted, and on several occasions by a judicious and successful combination of mounted and dismounted work. There is reason, then, for hope that the heated controversies of the past few years as to the respective merits of shock and fire tactics are at last cooling down into the sensible conclusion that there may be room on the battle-field for either or for both.

Whenever the tactical situation gave any opportunity for scouting, the work performed was noticeably good. The patrols were handled intelligently, and there was more energy expended by them in serious business, and less in aimless, futile pursuits of individual hostile scouts than on any previous occasion that can be remembered.

Altogether the manœuvres brought home vividly to those engaged in them the immense assistance that a cavalry leader, endowed with qualities of coolness and dash and commanding well-trained troops, can render to his own side.

The question of the training of our horses and of the riding of our men was dealt with last year at some length, and although the regiments under observation have changed in the interval, there is no change to make in those remarks. There are still some people who lay the flattering unction to their souls that the British possess a monopoly of the art of horsemastership and horsemanship. To all such, a September's trip to the Continent is recommended in the confident belief that they will return having realised that although our material may be of the best, our methods of dealing with it may none the less leave something to be desired.

The same horse artillery batteries, H and K, which trained here in 1906 came out again, but were armed this year with the new 13-pounder gun. It is a most beautiful weapon, and excites the admiration of all who have had anything to do with it. Although H and K are still quartered at out-stations and see no other troops except during their annual visit to the Plain, and although want of cash precludes the General Commanding-in-Chief from bringing them up to train for longer than a short six weeks in the summer, yet a distinct improvement was noticeable, especially as regards their co-operation with the cavalry. There was no standing by or hesitation shown during the manœuvres, when the guns were observed to be doing constant and useful work in supporting the action of the mounted troops. Possibly the remarks made in 1906 may have helped to this happy result. Perhaps H and K were able to get more preliminary practice with the Scots Greys and the 7th and 8th Hussars. However this may be, the fact remains, and the two batteries and their commander are to be congratulated upon it.

FIELD AND HEAVY ARTILLERY.

In commenting last year on the progress made by the field artillery, the opinion was hazarded that "by the end of the training

of 1907, when they have become quite accustomed to the new gun, they will be, humanly speaking, ready for anything." This hope has, it is believed, been justified. If the individual batteries are seriously wanting, whether it be in respect of officers, non-commissioned officers, men, guns, ammunition, horses, harness or in the combination of these factors, as exemplified by their drill and by their practice, then certainly the experiences of the General Commanding-in-Chief, both with his own and with foreign Armies, are entirely at fault. No such word as finality is, however, to be found in the curriculum of the art of war. Strenuous as has been the attention devoted on Salisbury Plain to the development of indirect fire, it has not yet been found always possible to cope by this method with fleeting opportunities and swiftly moving targets. Great improvement has been effected, but even so, the end of the season of 1907 finds the use of indirect fire still subjected to limitations imposed by the time it takes to develop and by the difficulty of quickly changing its elevation and direction. At present therefore there must continue to be some question as to its suitability to particular tactical conditions, although it is believed such limitations to its general employment may yet be largely, if not entirely, overcome by continued practice and by the adoption of improved sights and appliances. Not until this happens will the artillery of the southern command be able to claim that they can get as much out of their gun as it is capable of doing, and, difficult as the last stage of such a scale of progress must always be, and certain as it is that no other nation has as yet achieved it, there is still good ground for hope that officers so professionally keen as those of the Royal Regiment will somehow or other compass the desired end. For if the lessons of the recent struggles in Manchuria are worth a rush, they point clearly to the fact that batteries which come into action in the open, whether entrenched or not, have lost their mobility until they are released by the approach of darkness or until the enemy's guns are captured or have quitted the field. They cannot, so long as daylight lasts, advance to the closer support of their infantry; they cannot move to a flank, and they cannot retire. True, such movements are still occasionally to be seen at manœuvres, but they are based on a want of appreciation of the powers of modern quick-firers. Only once during all the bloody fighting of the First Japanese Army between the Yalu and the Shaho were the guns able to advance under fire to the support of their infantry, and on this occasion (the 12th October, 1904) not only were the Russians already beaten and commencing to fall back, but the advance was only for some few hundred yards into previously prepared gun-pits. It is useless to urge that the Japanese are more careful of loss of life than Europeans, for such is not the case. The real reason for their caution is to be found in the object lesson furnished to them by the complete destruction within eight minutes of the Russian battery which attempted to change position under fire near Makau at the battle of the Yalu. And yet at British manœuvres, batteries employed in a pursuit have been seen moving in the open, down the slopes of ridges, and coming into action without a vestige of cover for men or horses, whilst exposed the whole time to the fire of the concealed batteries of the hostile rear-guard! It is not, of course, necessary that guns which are to fire direct should go the length of fully exposing themselves in this manner to the fire of the enemy. Attention and credit should be given to that side of direct fire by which the guns can be brought into

action, and their position kept concealed at any rate until fire is opened. This may frequently be managed if the terrain is carefully reconnoitred and cleverly occupied. Advantage may be taken of the hours of darkness, of light, or background, of broken or undulating country, or of false crests, to occupy positions where only the flashes can betray the guns, and where they may be so difficult to range upon that they may be fought direct without undue losses and with reasonable possibility of withdrawal. Still, when all is said and done, the purely indirect method is not only the method along which most progress remains to be made, but is also the method which promises the finest results. The one serious objection raised (besides the slowness in ranging, to which reference has already been made) is that its constant employment may tend to impair the *moral* of the *personnel*. It has been urged, in fact, that too close a study of the value of indirect fire by British artillerymen may blunt their perceptions to the sacrifices which may legitimately be demanded of them in war. But nothing in the foregoing should be taken as condemnatory of the completest exposure of guns on occasion. It may, on occasion, prove impossible to neglect dead ground which cannot well be covered by indirect fire; it may be absolutely necessary to keep up a continuous heavy fire on some objective which is moving with exceptional rapidity or even to encourage hard-pressed battalions by thrusting guns into the thick of the infantry fight. In such cases, however, it is firmly believed that a battery which is ordered to sacrifice itself will do so more, not less, eagerly if it advances fresh and confident from the full security of an indirect fire position. The general who is about to launch a forlorn hope at the breach of a fortress, keeps them, if he is wise, in cotton wool until the fatal moment arrives. Fighting energy is an attribute which, outside the pages of romance, has very distinct limitations, and any battery which has been exposed for hours to the enemy's fire in its position on, or just behind, the crest line must already have dissipated at least a portion of what the Japanese call its "determination to die."

Before finally quitting the subject of direct and indirect fire, it seems desirable to put into the more permanent shape afforded by the annual training report remarks which have already been made by the General Commanding-in-Chief at conferences on the manœuvre ground regarding the tactical employment of guns in rear-guard actions.

During a pursuit it is the object of the pursuing general to pin down some of the enemy's rear guard so as to compel its commander to risk his whole force in an endeavour to extricate it. The artillery of the rear guard lends itself specially to such attempts, for it is the part, *par excellence*, of every force which a commander is least desirous of losing, not only on account of its tactical and monetary value, but principally because its capture furnishes an opponent with tangible proofs of victory.

It appears, then, that the commander of a rear guard can only be justified in employing the direct method of fire when he has made up his mind that the advantages of doing so are so great as to compensate him for the loss of his guns if he is forced to continue his retirement before nightfall. In other words, the use of indirect fire will usually be forced upon the artillery of a rear guard in war, and should therefore be sedulously practised in peace.

A direction in which notable progress has been made during the past season is in the growth of more intimate relations between the artillery and the infantry who are serving together in the southern command. It has long been felt that it was necessary, in order to elicit the best qualities of either arm, that the officers should be brought into closer touch with one another, so that they might cease to regard a kindred branch of the Service as something technical, specialised and almost mysterious. The Manchurian war, where the Japanese artillery and infantry worked in closer and more cordial co-operation with each successive engagement, added strength to the impression that here was a weak spot, not so much in the constitution as in the sentiment and custom of our Army. Accordingly, many officers of either arm have been attached for longer or shorter periods to the other, and all possible means have been taken to interest artillery officers in the handling of infantry, and *vice versa*. Constant support has been given to these views by the major-general commanding the 3rd Division and his C.R.A., and the former has even gone so far as to affiliate certain artillery brigades to certain infantry brigades, so that mutual friendship and comprehension might be fostered between all ranks of those units. The experiment thus initiated is being attentively and sympathetically watched by the General Commanding-in-Chief, and indeed it would be difficult for him to do otherwise, seeing that in his report of 12th January, 1905 (p. 452 of Vol. II., Russo-Japanese War Reports), he had strongly advocated the adoption of this very system. In some respects the new departure may be said to have already justified itself in practice. Thus, on one occasion at manœuvres, the two brigades of field artillery which had during training been affiliated to infantry brigades, were lent, for a specific operation, to their old infantry brigadiers, as it was possible to do this in the full confidence that the guns would be handled by the commanders in question in a competent manner to the full extent of their comparatively limited knowledge of the general situation. On the other hand, things do not always appear quite the same to a commander as to the irresponsible writer of a report, and now, after the experience of two full training seasons on Salisbury Plain, it seems clear to the General Commanding-in-Chief that the practical application of the system under discussion should be limited in war time to such special cases, as when an infantry brigade is employed on a special mission, involving its separation from the direct command of its divisional general. Its application under normal conditions of a division fighting intact is open to serious drawbacks, of which the most important is that the commander who divides his artillery and delegates the handling of brigades or batteries to subordinates must inevitably also delegate therewith much of his personal grip and direction of the fight partly to his brigadiers and partly also to the chances of war. This was not so much the case in South Africa, where a proportionately very numerous and important mounted infantry and cavalry absorbed most of the commander's attention, but in the more formal organisations required by European conditions, the handling of the artillery assumes a much more crucial importance. Moreover, it is impossible in such a connection to ignore the radical difference which distinguishes the position of Brigadier from that of divisional commander. Brigades of Infantry are not mixed bodies—divisions are! When Napoleon formed his divisions he did so on the supposition that they were the smallest mixed force which could fight for a

certain time—one hour, in our opinion—unsupported. Under normal conditions, infantry brigades are never supposed to fight unsupported. Once, in fact, the divisional commander definitely affiliates artillery to infantry brigades there is no logical barrier left to prevent the system being carried still further. The brigadier might attach a battery to each battalion, and a battalion commander might form his men into six companies and give each one of them a gun. These things might happen, but they will not, because it would be obvious to all that the result would be dispersion of power and effort instead of that concentration of both which is the secret of success. And the same objection, only in a lesser degree, applies to the habitual handing over of artillery to infantry brigadiers. Finally, the position of an infantry brigadier whose brigade is engaged is too far to the front to enable him effectively to direct the movements and control the fire of a whole brigade of artillery. It certainly seems, then, to the General Commanding-in-Chief that, although it may be expedient, on broad grounds, to affiliate brigades of artillery to infantry brigades during training, yet that, at manœuvres and in war, the divisional commander, aided by his artillery adviser, should himself as a rule direct, control, and handle the bulk of his guns. Further, although in the present organisation of the British Army no provision has as yet been made for the working of any force exceeding one division, still it is clear that when two or more divisions are in the field the commander of the force and his C.R.A. will also find it inexpedient, and indeed impossible, to divest themselves of their responsibilities in this respect. Otherwise the deplorable situation might arise of two divisional artillery commanders disputing for the possession of the best artillery position, whilst the commander of the grouped divisions had to improvise means for massing even the heavy artillery in support of his decisive stroke. There is no rule without an exception; but it is a significant fact that all the great artillery achievements of the past have been the result of concerted action by a large number of guns, and that at present in our organisation there is no recognised machinery to assist a force commander in making the necessary dispositions for such concerted action.

The heavy artillery has been handled with more skill and judgment when co-operating with the other arms than was the case a year ago. It no longer lays itself open to the criticism that it acts in the open field as if it formed part of the armament of a fortress. There is much to be said for the view that the heavy artillery would benefit if a proportion of its officers could be attached from time to time to field artillery. Nor would there be any harm, but probably quite the reverse, if officers, both of horse and field artillery, could occasionally see something from within of the working of a battery of modern heavy guns.

ROYAL ENGINEERS.

The field companies of the 3rd Division have been specially employed since the beginning of the year on removing huts from Bulford and putting them up again at Netheravon. They have worked very hard and well and have saved Government money, but as they had to be exempted from carrying out their annual training there is nothing further to be said about them here.

The fortress companies allotted to the coast defences have done a suitable course of training, and the 20th and 42nd Companies have,

it is believed, acquitted themselves well at the siege manoeuvres held at Chatham.

INFANTRY.

As was to be expected, a marked difference was at first noticeable between the battalions comprising the Portsmouth and Plymouth brigades and those of the Tidworth brigade, which had been training here all the year round. So rapidly, however, did this difference disappear in the course of practice on Salisbury Plain, that by the end of August it had already almost ceased to exist. Proof is thus afforded that efficiency does not necessarily demand that troops should be permanently quartered on the manoeuvre area, where the life of the soldier is monotonous and dull, and where he remains hidden away from the city populations who mainly subscribe for his maintenance.

In compliance with the injunction contained in these remarks last year, a great effort has been made to allow nothing "to interfere with the fullest, freest development of company training." The period during which companies have been placed at the absolute disposal of their captains has been increased, and a special course of company winter training was carried out in the dead season by the divisional commander. The heart of the matter has thus at last been reached, and it is believed that seldom in the peace annals of our infantry has there been closer touch achieved between company commanders and the rank and file of their companies than that which at present exists in the southern command. As a result there has been comprehension and sympathy on the part of the officers responded to, on the part of the men, by cheeriness, keenness, and endurance, even under all sorts of trying and disheartening conditions. It is not intended to imply that these qualities have not previously distinguished infantry battalions serving in the southern command. They have always done so in a greater or lesser degree; but still they have assuredly seemed specially prominent during the past season, not only to the general himself but also as evidenced by spontaneous appreciations received from officers of cavalry and artillery, as well as from the foreign officers, who stated on leaving the command that the features of our Army which they most admired were the horses and driving of the field artillery and the unflagging enthusiasm, energy, and goodwill of the foot soldier of the line.

Turning now to pure tactics, the General Commanding-in-Chief wishes it to be understood that the reaction against the exaggerated extensions adopted during and immediately after the South African war has gone far enough. This reaction had its origin in experiences gained throughout the recent war in Manchuria and in the subsequent study by officers of the formations then employed, and it was to a certain extent undoubtedly justified. It must be remembered however that Russians in their way are antagonists almost as abnormal as Boers, and that the bull's-eye is painted on the centre and not at one extremity of the target. During the past two years the actual intervals of the extensions practised in the southern command have, it is believed, been very nearly halved, and they now stand at an average only very slightly higher than those employed by the Japanese during the latter part of the war. The attack of the 3rd Division and of such auxiliary infantry as have trained upon the Plain thus possesses greater cohesion, flexibility, and driving power than was the case in 1906; still more so than in 1905, when the normal formation

for attack was a series of long, weak lines scattered haphazard all over the field of action. Not only have intervals now been considerably reduced but whenever temporary cover permits, the portion of the advancing line which strikes it now at once seizes the opportunity to close into small, handy columns, in which discipline quickly reasserts a steadying influence. All this is so much to the good; but it would not be safe to go further, as, on the whole, it is better for formations to be too open than too contracted, if only because it is always easier under fire to make men close in than to induce them to spread themselves out.

Apart from extensions, the method of advance under fire is happily becoming less stereotyped. Problems are often solved by the application of commonsense instead of being made a vehicle for the application of some pet theory, some fixed idea. The short, sharp rush of alternate bodies for 20 or 30 yards with its brief exposure and unbroken fire; the simultaneous advance of the whole line in one grand rush of several hundred yards, with the consequent cessation of fire compensated for in the minds of some by the depressing moral effect on the enemy, the plan of working men up gradually over the fire-swept area, crawling individually or by twos and threes; in fact any methods which in view of the commander were locally suitable have this summer been given full and fair trial.

Perhaps, however, the principal feature of the infantry work carried out in the southern command during 1907 is the amount of time and trouble which has been devoted to instruction and practice in night operations. The officers and men of the 7th Brigade, for instance, have spent a fortnight of nights this summer in march, manoeuvre, defence and attack, quite regardless of climatic conditions, which have sometimes been of the worst. Useful experiences have been gained, from amongst which one striking fact has emerged, namely, that a brigade of infantry which has been thoroughly practised in night operations possesses during the hours of darkness a superiority much more marked and incontestible than had hitherto been realised by most people over a brigade which has not had the same advantages; much the same ratio of superiority, in fact, as a blind man possesses over a normal man when lights are suddenly extinguished. The former regards the night as his friend, the latter regards it as his enemy. And so it is with trained and untrained or partially trained troops. The General Commanding-in-Chief has come to the conclusion, then, that whereas night attacks are not by any means too difficult if the troops employed are thoroughly disciplined and well practised at that particular sort of work, they are apt to prove fatal to half trained officers and men who do not trust their commanders, themselves, or their comrades in the unaccustomed adventure upon which they are embarked.

A matter which will need special attention to be devoted to it next year is that of inter-communication between companies, battalions, and brigades of infantry, as well as the practice of keeping touch between infantry in action and officers of superior rank belonging both to artillery and infantry. It is an ordinary feature of a field day for the commander of a force to intercept and master the contents of a message being sent back by a squadron or battery commander. But a battalion commander rarely, and a company commander never, says anything until he is absolutely *in extremis*. The facilities afforded by telegraphs and telephones are, in short, expanding much more

rapidly than the inclination or aptitude of officers to make use of them.

The General Commanding-in-Chief therefore desires that special endeavours should be made next season to practise regimental officers in keeping up constant communication between their own battalions and the battalions to right and left of them, whether or no these troops happen to form part of the same brigade. More practice must also be given to officers in passing information from the firing line back to the supports, reserves, and superior commanders, who must be dependent on their firing line for the very knowledge of who and what they are fighting. In the next war between civilised nations it will almost certainly occur that the only person who will succeed in sending back information of value to their commander will be the infantry actually engaged. Cavalry may detect movements on the flanks, and balloons or air-ships may get birdseye views which will prove highly misleading; but if the general wishes to know where an enemy in position is strong and where he is weak, he must be content to remain ignorant until the fighting infantry tell him. How necessary is it then that infantry officers should be trained to observe and to report as a regular part of their business!

In the period immediately following the South African war it was well recognised that whilst cavalry may detect columns on the march, they are no longer able, owing to the range of fire-arms and to smokeless powder, to make a thorough reconnaissance of an enemy in position. The General Commanding-in-Chief himself stated in evidence shortly after that war that the weak points of a position could not be detected until it had been boldly tapped at all along its front by infantry skirmishers, and the statement was never seriously challenged. The Manchurian war must, it is believed, be held responsible for the want of conviction in this respect which has recently characterised our training. Unfortunately, however, the Manchurian analogy does not in this respect afford us as safe guidance as our own old South African experiences. The Boers when they took up a position were accustomed to leave the naturally strong and prominent parts of their line practically untouched, reserving all their energy and work as well as most of their riflemen for the strengthening of weak spots and for the creation of unexpected advance and rear and flank positions. Often, indeed, it was not until the apparent true position had been captured that the real fighting began, and then it was usually begun at a disadvantage. The Boers practised concealment up to the very last moment, and it was impossible, or at any rate the British seemed to find it impossible, to get spies to give them a reliable sketch of the distribution and posting of the hostile force. The Russians, on the contrary, took care to render the strong and obvious parts of a position almost impregnable, bestowing little work and fewer men upon the flanks and other weak spots. They did not seem to attach much importance to concealment except latterly, as regards the posting of their guns, and the Japanese system of Chinese spies was extraordinarily well organised and efficient. Thus, in Manchuria the Japanese infantry usually knew the precise position and distribution of their enemy's troops before they had fired a shot; not from their cavalry reconnaissance; not by an infantry reconnaissance or by a reconnaissance in force, but simply by using their telescopes and studying the maps and reports issued by their Intelligence Depart-

ment. It will be agreed, however, that it would not be wise to train troops on the assumption that similar conditions would be met with in our next war. The Boer analogy is far the safest one to follow, and the education of infantry officers in observing with judgment and accuracy and in sending back useful information must therefore receive attention during the ensuing summer.

MACHINE GUNS.

In last year's remarks, the General Commanding-in-Chief expressed a wish that a trial might be given to the system of massing the machine guns of battalions into brigade batteries under command of a specially selected officer. On the whole the result has been disappointing. The system of brigading machine guns has, in fact, only proved valuable on occasions when a carefully prepared position has been taken up which it was intended to hold for several days. Under ordinary circumstances it has been found that machine guns are better with their battalions, where they offer a comparatively small mark, and are on the spot to seize a fleeting opportunity than brigaded, when they will probably be seen and fall a prey to the hostile artillery, and when they may not after all be available at the critical time and place. On one point all officers who have been consulted support the opinion of the General Commanding-in-Chief, to the effect, namely, that the present cumbersome carriage is entirely out of place as part of a machine gun equipment. Some 15 years ago a strong and experienced committee in India reported that tripod mountings with mule pack carriage for both gun and ammunition were the only equipment which would enable machine guns to accompany infantry through broken or closely wooded country, and at the same time minimise the risks of their destruction by hostile artillery fire. It is now greatly hoped that measures are being taken by which in the next few years effect will be given to those recommendations, not only in India but in the Colonies and at home.

ARMY SERVICE CORPS.

This branch of the Service received much benefit owing to the fact that money was available to bring all the Army Service Corps companies up in turn from Portsmouth and Devonport for training on Salisbury Plain. Many useful lessons were learnt, especially by the Devonport companies, who had not for many years had an opportunity afforded them of even pitching a tent, much less of living under canvas. Not only did the companies acquire practical knowledge themselves, but they were also well employed in imparting instruction to Volunteer A.S.C. companies during their training. The result of this preliminary work and of the healthy emulation which it aroused between companies belonging to Portsmouth, Plymouth, and Bulford was shown during the manoeuvres when the supply and transport duties were carried out without the smallest hitch or *contretemps*, notwithstanding that many of the officers employed were of very junior rank.

ROYAL ARMY MEDICAL CORPS.

Ten officers and 182 other ranks of the Royal Army Medical Corps were trained in field ambulance duties on Salisbury Plain between the 19th of June and the 10th of July, during which time a field ambulance was mobilised for their instruction. All ranks were thus

thoroughly familiarised with field ambulance work as well as in the practical carrying out of the details connected with camp sanitation.

At the manoeuvres in September the newest forms of sanitary precaution and the effective sanitation of camps were rigidly enforced. It is now becoming more generally understood that such matters cannot any longer be left entirely to medical officers and regimental quartermasters, but that the combatant officers must also bear their share in a work on which the efficiency of their commands so greatly depends.

During these same manoeuvres the troops of the southern command enjoyed a marvellous immunity from sickness. Only 67 men out of a total of about 9,000 had to be admitted to hospital; half the admissions were for slight injuries, and the great majority of the balance were quite trivial complaints.

Considering the hard and lowering surroundings of the class from which our soldiers are mostly drawn and the poor condition of so many of them on enlistment, their remarkable freedom from sickness during the exposure and hardships incidental to the manoeuvres affords ample testimony of the striking improvement in their physical vitality, brought about by a careful system of training, good feeding, and improved hygienic surroundings. The soldier is, in these respects, in a vastly superior position to his prototypes in his own class, and the medical advisers of the General Commanding-in-Chief are clear upon the point that his power of resisting disease is in all respects greater than that possessed by the civilian of the same social grade. Moreover, the difference between the sallow, thin, underfed youth from the town slums and the sturdy, red-cheeked, active young man into whom he develops after a few months' military service is not confined to himself, but must, and does, as is statistically capable of proof, leave its mark for good on his children. In other words, the Standing Army of Great Britain has now become an instrument of social and physical regeneration, more effective in some ways even than a conscription Army, which only improves those who are already good, and more effective in some ways also even than philanthropic associations which expend so much of their money and labour upon material which already is past praying for.

AUXILIARY FORCES.

The General Commanding-in-Chief would, under normal conditions, have had something to say regarding the training of the Auxiliary Forces during the past season. Seeing, however, that the old organisation is breathing its last at the very hour these lines are being penned, he has determined to act upon the principle *de mortuis nil nisi bonum*, and to refer only to points which may have a direct bearing upon the life of the new Territorial Army.

One of these concerns the composite squadron of Imperial Yeomanry which was mobilised under the new conditions, and was employed during the September manoeuvres exactly as it would have been on active service. In making the experiment of mobilising a squadron drawn from four different county regiments, the first essential was to give all concerned a fair chance by selecting an efficient commanding officer. The choice fell upon Major J. M. F. Fuller, of the Royal Wilts Yeomanry, and it has been fully justified by the event. As usual, where British corps are concerned, there was no difficulty whatsoever

about the men. An embarrassingly large number of the best stamp of men bred on these islands volunteered at once for the job, and this at a period when they were still unaware of the precise conditions, but had good reason for thinking that they would have less pay and greater hardships than turned out eventually to be in the terms of the contract. But, as usual also in British undertakings, the preliminary arrangements had left too much to the chances of executive readjustment, and there was a good deal of anxiety and trouble before the squadron was able to shake down into its proper fighting shape. The four Yeomanry regiments concerned, namely, the Wilts, Bucks, Dorset, and Hants, for the most part seem to have selected their quota of 30 men more or less at random from the ranks of the numerous volunteers. Practically every one of the men furnished expected to be in the forefront of the firing line whenever and wherever there might be a fight, and no one had been chosen with an eye to the administrative necessities of the troop, or had any ambition to lend a hand at that part of the business. One of the troops brought no farrier, no shoeing smith, and no scouts. Only one troop brought semaphore flags. Only one troop brought signallers. Upon this unorganised body the selected squadron commander descended, and had to take things as he found them and make the best of them. Here, however, the organised capacity of the commanding and other officers (amongst whom Lieutenant Baxendale, of the Hants, should be specially mentioned) as well as the good spirit of all ranks came into play, and succeeded, with the assistance of command headquarters, in turning the mobilisation, as well as the subsequent tactical work during the manœuvres, into a very distinct success.

The lessons to be learnt from this experiment are clear. First of all, the system of a composite squadron is in itself radically unsound, and it is not fair to bequeath to the County Associations an unsound system without placing on record an opinion of its demerits. At its best it must always give, especially at the outset, much more trouble than the single squadron system, and all that can be hoped for in working under such conditions is to obviate the most glaring of the disadvantages. To this end the troops drawn from the regiment to which the commanding officer belongs should be made a head-quarter troop, and it should supply a complete outfit of staff, including especially a squadron quartermaster-sergeant, to the composite squadron. This will ensure one system throughout the unit instead of four systems. For the same reasons no troop, except the head-quarter troop, should bring with it a squadron sergeant-major on the permanent staff, as it has been found that these non-commissioned officers have too much *esprit de corps* to enable them easily to amalgamate with non-commissioned officers and men of other regiments. On the other hand, all four troops should be warned to find their necessary complement of cooks, farriers, shoeing smiths, bätmen, and officers' servants.

Under such conditions a composite Imperial Yeomanry squadron would have a fair chance of becoming a self-contained and homogeneous unit; but even so, it must be clearly understood that it would take a long time before it could expect to become as effective for fighting purpose as a good squadron taken complete out of one corps.

Another point which will certainly be anxiously debated in many County Associations concerns the creation and organisation of the new Territorial Artillery. Were the General Commanding-in-

Chief to give publicity at the present stage to his own views on such a subject, he would, he feels, be trenching on the sphere of superior authority. He will, therefore, merely indicate some of the factors of the situation by giving his experiences of the artillery belonging to the Auxiliary Forces which have trained during last summer on Salisbury Plain. These were the Lancashire Royal Field Artillery (Militia) and the Honourable Artillery Company of London (Volunteers). The Lancashire Field Artillery Brigade had the advantage of being commanded by an exceptionally good Regular officer, who inspired respect and confidence, and was extremely popular withal. The battery commanders were also exceptionally keen, as may be judged by the fact that much of their spare time had been devoted to studying the work of service batteries in practice camps at their own personal expense. The subordinate officers were less efficient; but shortcomings on their part were made good and discipline stiffened by the presence of a large percentage of Regulars, amounting to nearly one-third of the total strength. In fact, all the specialists in these batteries, such as signallers, layers, etc., etc., were permanently enlisted, Regular artillerymen. As to the efficiency of these batteries there can be no doubt. Discipline, horse management, driving, and practice were all sufficiently satisfactory to render the Lancashire Field Artillery Militia fit to make a good fight of it against, say, half of their number of Regular guns.

Turning now to the Honourable Artillery Company, the conditions were quite different, and are up to date probably unique, although it is hoped they may shortly now be duplicated and reduplicated. The battery commanders were enthusiasts. The intelligence of the non-commissioned officers and men was so high that it was impossible to disregard the fact that when speaking to them they stood on much the same intellectual plane as Regular officers. Many of them were good horsemen because they were accustomed to ride in private life. There seemed to be money available for anything in reason. The weakest point of the Honourable Artillery Company, as of the Lancashire Field Artillery Militia, was in the matter of subaltern officers, who were deficient in professional knowledge and timid in command. Here, however, there was no permanent Regular staff to make shortcomings good, and so the evil was much more pronounced. At practice, when subaltern officers were called upon to carry out a "series," frequently the whole machine collapsed so far as fire discipline and tactics were concerned. Similarly the machine was extremely liable to go clean out of gear when any unforeseen situation was created, such as, for instance, a number of suddenly created casualties.

Here is disclosed the weak point of auxiliary troops of any branch of the Service. Probably by reason of the developing effects of responsibility, commanding officers and squadron or company leaders are usually pretty good, but troop leaders in the Yeomanry and subalterns in the artillery or infantry are, comparatively speaking, distinctly less efficient. Too many junior officers who are clever men in offices and in conversation or on paper, cut a less imposing figure when they are face to face with men and are required to wheel them into line. They tend to be led by, rather than to lead, those under them. They want the power of command—the power of having such confidence in themselves that they inspire those under them with the same feeling. And it is for this reason that practical courses such as

Hythe, or a period of training with a Regular battalion, and for the coming artillery officers of the Territorial Army, Shoeburyness and Okehampton, or a period of training with a Regular battery, are so much better for young officers of the Auxiliary Forces than any number of courses of theoretical instruction.

To sum up this dissertation on the two types of artillery trained on Salisbury Plain, it would not be unfair to describe the Lancashire Royal Field Artillery Militia as professional units insufficiently instructed, trained and officered, or the Honourable Artillery Company as quick witted, capable amateurs, who could in time be transformed into efficient fighting units, but who would be behind their Militia cousins were it necessary to use them immediately in the line of battle.

As to the urgent necessity of raising a large force of artillery in the counties there can be but little reasonable doubt. The less highly trained infantry and cavalry may be, the more do they need the support of guns. In proportion as the Roman Infantry deteriorated from the high regular standard of the ancient days, so did they make more use of machines (*i.e.*, artillery), which they used with the greatest skill. Clausewitz also says: "If a weak State opposed to a powerful one cannot take refuge in a general call of the male population or in a Militia system resembling it, then the increase of its artillery is certainly the shortest way of bringing its weak Army nearer to an equality with that of the enemy, for it saves men and intensifies the essential principle of military force, that is, the destructive principle."

Doubtless the initial steps will be made with great difficulty through a tangle of plausible objections, such as the want of a trained nucleus, the lack of suitable practice grounds. Nevertheless, let a fair start once be made, and all will come right in the end.

WRITING OF WINTER ESSAYS.

The orders that have been issued making the writing of essays entirely voluntary on the part of officers have, as intended, had the effect of freeing some good, sound, and practical regimental officers who have no leaning towards literature from the burden of much uncongenial work. On the other hand, these orders have had another somewhat unexpected and certainly pleasing result. Freed from the sense of doing an obligatory task, and apparently feeling themselves left to express their opinions openly, officers have this year produced essays of a distinctly higher type than any the General Commanding or his General Staff have seen before—indeed, most of the essays, sent in have attained a thoroughly creditable standard of literary and professional merit and value.

A. LYNDEN-BELL; Major,

General Staff, Southern Command.

*Headquarters, Southern Command,
Tidworth House, Andover,
1st November, 1907.*

NAVAL NOTES.

The following are the principal appointments which have been made: Captains—E. G. Shortland to "Victory," as Commodore, 2nd Class, in command of Naval Barracks; the Hon. A. E. Bethell, C.M.G., to "Dreadnought," as Chief of the Staff to Vice-Admiral Sir F. C. B. Bridgeman, K.C.V.O.; E. F. A. Gaunt, C.M.G., to "Majestic"; H. H. Stileman to "Duke of Edinburgh"; F. E. Ryan to "Astræa"; G. W. Smith to "Monmouth"; M. Singer to "Roxburgh"; A. C. Leveson to "Bulwark"; B. H. Barttelot to "Niobe"; J. C. Ley to "Endymion"; S. A. Calthorpe, M.V.O., to "Hindustan"; G. H. Borrett to "Indefatigable"; C. J. Prowse to "Powerful." Commanders—E. Reeves to "Skirmisher"; A. P. Davidson to "Pandora."

Launches.—The new destroyer "Swift" was launched on the 7th ult. from the Birkenhead yard of Messrs. Cammell, Laird and Co. Built to the order of the Admiralty to meet the requirements of a special type of sea-going torpedo-boat destroyer, she is of considerably larger dimensions than any vessels of the destroyer class, and is designed for a speed of 36 knots, as against 33 knots of the "Tribal" class of sea-going destroyer. Her principal dimensions are:—Length 345 ft., beam 34 ft., depth 20'4 ft., with a displacement at her mean load draft of about 1,800 tons. Her armament will consist of four 4-in. B.L. guns—two on the forecastle and two on the upper deck, where there will also be a couple of torpedo tubes. She will be propelled by quadruple turbine machinery of the Parsons type, manufactured by Messrs. Cammell, Laird and Co., at their Birkenhead works. As in the case of the new Cunarders, the turbines drive four shafts with one propeller on each. There is an installation of 12 boilers of the Express straight tube type, and these are arranged for the consumption of oil fuel.

The first of the turbine torpedo-boats built by the firm of John I. Thornycroft and Co., for the Navy, since the transfer of this branch of their work to Southampton, has just been launched successfully. This vessel, known as first-class torpedo-boat No. 19, is one of four of the same type building at Southampton, and is on the same lines as the five—originally known as the "Insect" class—delivered during the latter part of last year and the early part of this from the Chiswick works, though the new boats are somewhat larger, being 180 feet in length instead of 168 feet. Otherwise, in power, armament, speed, and the use of oil fuel in their water-tube boilers, they are identical. The general dimensions of the new vessel are: 180 feet in length, 18 feet 3 inches beam, and 5 feet 10 inches draught fully loaded. The turbines, constructed by Messrs. Thornycroft, enable a speed of over 26 knots to be easily maintained. The earlier vessels, indeed, though guaranteed for a mean speed of 26 knots, all actually attained considerably over 27 on their official trials. The armament consists of two 12-pounder quick-firing guns and three 12-inch torpedo tubes. The vessel was launched with all machinery on board.—*Times*.

Steam Trials.—A speed of 33 knots is exceptionally high under any conditions, even in these days of high speeds, but when it is specified that this speed shall be kept up for a period of six

Home. hours with a strictly limited consumption of fuel, the problem of complying with such stipulation may be regarded as not an easy one. Interest therefore attaches to the trial-trip of the "Ghurka," the third of a new type of ocean-going destroyers, which has recently been built by Messrs. R. and W. Hawthorne, Leslie and Co., is intended for high-sea work, and has just completed her official trials.

The speed during the whole of the period of six hours was 31.91 knots during the full-power trial, which was nearly a knot more than the specified speed, while the mean of the six runs over the measured course during the fourth hour gave a speed of 34 knots, the highest mean speed on the measured mile being 34½ knots. It is thought by the makers that a speed of over 34 knots might easily have been maintained over the whole course had not the amount of fuel per square foot of heating surface been restricted.

When the vessel underwent her 24-hours' consumption trial the conditions laid down by the Admiralty were that she should have a radius of action of 1,500 miles at a speed of not less than 13 knots. These conditions were more than realised, for the "Ghurka" had a radius of action of 1,715 nautical miles at a speed of 13½ knots. If she were fitted with the Peace tanks, it is expected that she would be capable of steaming almost 2,500 knots without a stop, which corresponds to a voyage across the North Atlantic to Canada, or a run from the Tyne to Malta. No such large radius of action has hitherto been attained by any other vessel of similar type.

After the completion of the trial at Yarmouth on the evening of the 29th November, the vessel proceeded to Sheerness, where she took in oil fuel, and sailed for the Tyne on the following morning at 8 a.m. She arrived off Tynemouth Pier at 6 p.m., the distance being 270 miles, having performed the journey quicker than it could have been done from Sheerness to Newcastle by train. The speed during this trip, with a moderate sea, was 27 knots, which was easily maintained with four out of her five boilers.

These results, which have been obtained with boilers burning oil-fuel, are highly satisfactory to the makers, who are to be congratulated on their success.

The chief dimensions of the "Ghurka" are: Length, 255 ft.; beam, 25 ft. 6 in.; displacement, 864 tons.

The armament consists of three 12-pounder quick-firing guns, one being placed on each side of the forecastle, and one on a platform aft. In addition to these, there are two deck torpedo-tubes.

Turbine machinery of the Parsons type is fitted in the vessel, having been made by Messrs. Hawthorne, Leslie and Co., at their St. Peter's Works. Three propeller shafts are used, on the centre one of which a high-pressure turbine is fitted, while a low-pressure turbine is fitted on each of the wing shafts, in addition to cruising and astern turbines, the cruising turbines being used for economical cruising at sea.

The boilers, of which there are five, are of the latest improved Yarrow type, and are specially fitted with oil-burning arrangements. Boilers of this type are considered equally efficient when burning either oil or coal.

The official six-hours' full-speed trial of H.M.S. "Tartar," one of the larger class ocean-going destroyers recently built for the British Admiralty by Messrs. John I. Thornycroft & Co., Limited, Southampton, was satisfactorily carried out at the mouth of the Thames on Monday, 16th December.

The speed obtained on the six runs over the measured mile was 35.672 knots, with mean revolutions of 775.5 per minute; while the mean speed obtained during the six hours was 35.363 knots, with mean revolutions 768.8 per minute. The highest speed attained on the measured course was 37.037 knots, with the tide. The contract speed required by the Admiralty was 33 knots, so that it will be seen that this has been exceeded by 2.363 knots by the "Tartar."

The table herewith gives the results obtained throughout the trial:

Number.	Speed on Six Runs in Knots.	Mean Speed During Each Hour.	Mean Revolutions per Minute on Six Hours.
1	36.810	35.137	763.9
2	34.549	35.245	766.2
3	36.961	35.401	767.9
4	34.286	35.301	767.44
5	37.037	35.429	770.2
6	34.286	35.665	775.4
Admiralty mean	35.672	35.363	768.8

The splendid result achieved has been due to the employment of the latest advances in scientific marine engineering practice, together with the skill and special experience gained by the builders during the many years in which they have been engaged in building high-speed vessels.

The "Tartar" is a vessel 270 ft. long and 26 ft. beam. She is built principally of high tensile steel, and the methods adopted of constructing the hull are such as to obtain the maximum of strength for the least amount of material. The propelling machinery (which was made by Messrs. Thornycroft and Co., at their Southampton works) is of the Parsons steam-turbine type.

The fuel used is a heavy oil, which is injected into the furnace by means of special burners of Admiralty pattern, and the boilers are of the Thornycroft water-tube type (six in number). This combination provides a steady and ample supply of steam, the working pressure being 220 lb. per square inch. The advantages gained by using oil fuel are very apparent, as was observed from the "Tartar," when running at 34½ knots in Stokes Bay, using oil fuel. From the funnels there was hardly a trace of smoke, due to the precision with which the necessary amount of air can be adjusted for perfect combustion. Another important matter is the freedom from the continual shower of small ashes from the funnels falling upon the deck, so usual in coal-burning ships, and the total absence of flaming at the funnels. Again, the ease with which the speed may be reduced almost instantly is a very important consideration.

The vessel will be fitted with wireless-telegraph apparatus. Mechanical means are provided for ventilating the engine-room when the hatches are closed in bad weather. The usual system of voice-pipes is replaced by an installation of loud-speaking telephones, fitted at all the important stations throughout the ship. The main deck is not obstructed by high coamings along the boiler-rooms—an advantage due to the use of the Thornycroft type of boiler—and thus allows of easy passage from side to side.

The following is a list of a few of the torpedo-boats and destroyers built by Messrs. John I. Thornycroft and Co., Limited, each of which created a record in its day :—

Name.	Government.	Date.	Speed in Knots.	Type.
"Ariete"	Spanish	1887	26.003	Torpedo-boat
"Daring"	English	1893	28.213	Destroyer
"Boxer"	"	1894	29.170	"
"Desperate"	"	1895	30.350	"
"Albatross"	"	1898	31.500	"

The total number of torpedo-boats and destroyers built by this firm is 293, and the "Tartar" is the first one built and completed at the Woolston Works, where at the present time there are building the "Amazon," which is a little larger than the "Tartar," and four torpedo-boats fitted with oil-fuel arrangements and the Parsons type of steam-turbine, for the British Admiralty. Since the trial of the "Tartar" an order for a second "Amazon" has been received by the firm.—*Précis from Engineering.*

The following are the principal appointments which have been made :—Rear-Admiral A. M. Thierry to command of 2nd Division of the Squadron of the North. Capitaines de Vaisseau—B. M. de St. Pern to "Marseillaise"; A. M. Ytier to "Kléber." Capitaines de Frégate—M. J. Grandclément to "Chamois"; C. L. D. Mornet to "Descartes"; H. J. Durand to "Du Chayla."

General.—Vice-Admiral Péphau has relinquished the command of the 2nd naval arrondissement at Brest, which he has held since the 1st March, 1905.

Rear-Admiral Perrin arrived at Saigon on the 20th ult., and hoisted his flag on board the "D'Entrecasteaux," in command of the Naval Division of the Far East.

Rear-Admiral Thierry, whose flag has been flying on board the armoured cruiser "Kléber," while in command of the Atlantic Naval Division, transferred his flag on the 2nd inst. at Brest to the first-class cruiser "Marseillaise," on assuming command of the 2nd Division of the Squadron of the North. The "Marseillaise," a new ship, is to take the place in the division of the "Gloire," which is to undergo extensive repairs. The "Kléber" left on the 8th inst. for the coast of Morocco, where she will hoist the flag of Rear-Admiral Philibert, who becomes for the time being Commander of the newly-formed 3rd Division of the Squadron of the North.

The newly-formed 3rd Division of the Squadron of the North is to consist of the armoured cruiser "Kléber," and the second-class protected cruisers "Chasseloup-Laubat" and "Descartes," which latter ship was commissioned at Toulon on the 5th ult. For the time being the Atlantic Naval Division has been suppressed, the only vessel belonging to it at present in the West Indies being the third-class cruiser "D'Estrées." The second-class cruiser "Isly" was commissioned on the 9th inst. at Lorient, and is to be sent to Morocco for temporary service with Rear-Admiral Philibert.

The first-class battle-ship "Démocratie" was commissioned on the 9th ult. at Brest, and was to leave on the 15th inst. for Toulon, where she joins the Mediterranean Fleet, relieving the "Charles Martel." During her passage round she is to carry out a long speed and coal-consumption trial. The new first-class battle-ship "Liberté" is also to be commissioned immediately at Brest for service in the Mediterranean Fleet. Towards the end of the present quarter the new first-class battle-ship "Justice" will be commissioned at Toulon for service with the Mediterranean Fleet, as will also the "Verité," the last of the "République" group, on completion of her trials at Brest.

It has now been decided that the wreck of the "Jéna" shall be sold; the old battle-ship "Courbet" has also been struck off the active list of the fleet and will be sold.

The old torpedo cruiser "Condor," built in 1885, and the cruiser "Milan," 1,500 tons, also built in the same year, are both condemned to be sold out of the Service.

During exercise carried out by the *mobile-défense* of Lorient on 16th December, an explosion occurred on opening the breech of a 37-mm. gun after firing, by which a sailor on torpedo-boat No. 252 was blown overboard and drowned.

The Steam Trials of the Battle-ships of the "République" Class.—The result of the trials of all these ships, which form what is known as the 1900 programme, although work on the first of which was not commenced until the end of 1901 and on the last before the end of 1903, has been most satisfactory. The "Patrie," "République," and "Justice" are provided with the Niclausse boiler; the "Démocratie," "Liberté," and the "Verité," with the Belleville. In every case the estimated speed of 18 knots has been exceeded by a knot or more.

Twenty-four Hours' Normal Full-speed Trials.

Ship.	I.H.P.	Speed in Knots.
"Patrie"	11,660	17.8
"République"	10,985	16.7
"Justice"	11,530	17.9
"Démocratie"	11,472	17.3
"Liberté"	11,657	17.2
"Verité" (Preliminary, still on trial) ...	11,483	17.5

Three Hours' Full-speed Trial with Forced Draught.

Ship.	I.H.P.	Speed in Knots.
"Patrie"	17,600	19.125
"République"	19,600	19.15
"Justice"	18,548	19.42
"Démocratie"	19,160	19.44
"Liberté"	20,565	19.31
"Verité" (Preliminary)	18,231	19.1

The steam trials of the armoured cruisers of the "Gambetta" type have also been very successful:—

Three Hours' Full-speed Trials under Forced Draught.

Ship.	I.H.P.	Speed in Knots.
"Gambetta"	29,000	23.17
"Victor-Hugo"	28,427	22.9
"Jules Ferry"	28,695	22.87

All three ships were designed for a speed of 22 knots.

France. At full speed under normal draught (16,000 I.H.P.) for 24 hours, the "Gambetta" averaged 20 knots; the "Jules Ferry," 21 knots for 20 hours, and then 20 knots for 72 hours, with 17,000 I.H.P. The "Victor Hugo," after having averaged 19.5 for three days, steamed across the Atlantic and back at a mean speed of 16.5 knots, with 16 boilers alight out of 28, the engines developing 8,657 I.H.P.; after having thus run for more than 8,000 miles, she took part in the Naval manœuvres without any overhaul of her engines and boilers, during which her engines were continually worked up to their highest speed.

The submersible "Germinal" (late "Q. 53") was launched at Cherbourg on 7th December, and the destroyer "Gabion" was launched at Rouen on 23rd December.

The Budget of the Navy in the Senate.—In introducing the naval budget in the Senate on 27th December, M. Poirrier, the reporter, spoke as follows. He said it was not possible to reduce the estimates in any way on account of the increased naval expenditure of all the great Powers. The British estimates had quadrupled during the last ten years, and the German increase was still larger—putting it shortly, the naval expenditure of the world, which a few years ago did not exceed 2½ milliards of francs (£100,000,000), had now reached the enormous sum of eight milliards (£320,000,000). Under these circumstances no one can be surprised that our own budget has increased in the last ten or fifteen years from 110 (£4,400,000) to 320 million francs (£12,800,000). This being the situation, what should be our programme, and how are we best able to expend the 320 millions (£12,800,000) voted for 1908? As regards new ships, Parliament has, last year, sanctioned the building of six large battle-ships. According to universal agreement, large vessels of 18,000 to 20,000 tons, heavily armed, thickly armoured, and with speed approaching 20 knots, are now necessary, and though we may regret that naval architecture at present demands vessels of this size, costing 50 millions (£2,000,000) each, it cannot be helped. The important question of new construction may thus for the moment be considered as settled, and we are simply going to build the six authorised battle-ships of the "Danton" class and a few small vessels, chiefly destroyers, torpedo-boats, and submarines. M. Poirrier next dealt with the questions of new powders and projectiles, calibre of guns and target practice, pointing out that the defects which had shown themselves were due more to the difficulties inherent to a period of transition than to the faults of individuals. As regards the question of the arsenals, he asked, does the State, which employs 30,000 workmen, get adequate value for the outlay? Certainly, he said, we should not abolish our arsenals, but it may be possible to introduce improvements in the method of work. The men must be called upon for a good day's work, the 8-hours day is reduced to 7, and often even 6½ hours. The men should be given an interest in their work; at present there is no stimulant; if a man can be made to feel it to his own interest to do good work, superintendence will become more or less unnecessary. All the directors of the arsenals have informed me that their men are fine fellows, but wanting in strength of character to resist the pressure of the agitators. The Minister of Marine is, I know, considering the question of the introduction of piece work, but men should also be paid according to the quality and nature of the work done.

Admiral de Cuverville regretted that France had, alas, France. passed from the second to the fourth place among naval Powers, ranking after the United States and Germany, and feared it would not be long before she fell to the fifth place, below Japan. He regretted to see there was talk of reducing the period of service for seamen to two years (the Minister interposed, saying they were upholding the *inscription maritime*). The Admiral also criticised the new proposals as to the entry of officers, and said the idea of realising "unity of origin" was a chimera; the naval officer must have an inbred love for the sea, and he regretted to see the abolition of the sea-going training ship "Borda," and the proposal to substitute for her a college on shore, which he considered a great mistake. He also objected to increasing the age at entry, holding that the younger an officer commenced the better chance there was of his soon becoming accustomed to sea life.

M. Pichon spoke of the delay in ship building, and referred to the matter of introducing signals between submarines when below water. (The Minister stated that an instrument invented by Lieutenant Carré had been ordered for trial.)

M. Delahaye objected that the names of the new ships were badly chosen, those of great seamen being neglected for men of literary or political note.

M. Thomson, Minister of Marine, in replying, said: As regards slowness of construction, the dates should be carefully examined, and it would be found that ships of the 1900 programme were not commenced till 1901, 1902, and 1903, and as regards the delay in commencing the 1906 programme this was due to the introduction of turbine machinery; nevertheless, he agreed that it ought to be possible to build faster, and means have been taken to hasten the carrying out of the 1906 programme. I quite agree that the workman should be made to feel an interest in his work, and as an experiment we have re-introduced piece work at Guéringy and Ruelle; the men must be educated to the idea that it is by piece work they must seek an augmentation in their wages. As regards the armament of the new battle-ships, the Conseil Supérieur is considering whether there should be only one calibre of 305-mm. (12-inch) gun, or whether two calibres, 305-mm. (12-inch) and 240-mm. (9.44-inch) should be adopted; the decision will not be taken without previously consulting Parliament. As regards the names of the new ships they were chosen from the illustrious men of the French Revolution.—*Le Temps, Le Moniteur de la Flotte and La Vie Maritime.*

Report of the proceedings at the Court-Martial on Admiral Rojdestvensky and the Officers of the "Bedovy" (concluded).

Russia. —The accompanying report of the proceedings at the trial of Admiral Rojdestvensky and the officers of the Russian destroyer "Bedovy" has been translated from the *Novoe Vremya* by Captain G. A. West, late R.A. :—

PROSECUTOR'S SPEECH.

"The sentence of the Court in this case will not only decide the fate of the accused, but will also guide the views of our younger generation of sailors. Our young officers should be thoroughly aware of their rights and obligations, so that they may not show hesitation in moments of difficulty and responsibility. Victory does not come to those who have not determination, to waverers. In the hands of such the most modern ships, the most perfect machinery will be unavailing. A chance circumstance, the

Russia want of determination of one, the treachery of another, may act in a fatal way on an inert mass. Success is to the strong of heart and to those who have a strong sense of duty. That is why the Court is bound not only to go into the smallest details of the present case but also to consider those radical matters, vital to the fleet, with which this present matter is bound up. With the present case are associated the most essential questions of naval and military service and etiquette. So that, first of all, it is necessary to accurately establish the cases in which the surrender of a ship is permissible. With regard to the present case, moreover, this question is easily determined.

"According to the strict sense of Article 354 of the Naval Regulations, an undamaged warship, with guns in action and other means of defence, must not, even on the most humanitarian grounds, be surrendered without fighting. Thus also other regulations deal with this question and thus also, of course, is it decided by naval and military etiquette. Then there arises the question, is every officer in the ship who knows about the proposed surrender and does not oppose it answerable for it if it does not take place under the conditions when it is authorised by the regulations? According to the strict letter of the law officers are not responsible for the surrender. If the admiral is present, even the commander of the ship is not responsible. But this is not the spirit of the law.

"Of course, the surrender (in the judicial sense) of a ship or squadron can only be effected by those in chief command, since it is only they who possess full direction over a squadron or ship. A single officer and the crew of a vessel cannot surrender it. The Admiral-in-Chief of a fleet or squadron, also the captain of a single ship, cannot surrender a squadron or ship in the literal sense of the word; they require assistants to execute the orders given by them. An officer in thus fulfilling illegal orders exceeds the powers conferred on him by law and must bear the responsibility for this. An officer who carries out the order of his superior when this order concerns an illegal surrender is thereby exceeding the powers conferred on him by law, as also an officer not opposing such surrender must answer as participant. If an illegal surrender takes place after previous agreement between the commander and officers the guilt of the action is still more evident. But since the action is a guilty one and the law provides no punishment for it, we are obliged to have recourse to an analogy. The surrender of a ship by previous consent is more in the nature of two transactions, namely, the transactions mentioned in Articles 271 and 279. The first of these Articles speaks of treachery, and by treachery is meant every violation of the obligation of the service with the intention of furthering or favouring the enemy. Article 279 deals with the case of the surrender of a ship, without such intention, out of mere cowardice or faint-heartedness.

"As regards the participation of the crew in the surrender, the lower ranks and other persons on board, who are not by law summoned to take part in the conference before the surrender, are not punishable for it by court-martial. They are often not able to judge accurately whether the conditions required by law were observed at the surrender.

"Thus is the present question decided by the laws now in force. Our former laws, it must be remembered, were clearer and more definite. In the time of Peter I. our admirals and staff officers did not even allow the thought of cowardice on the part of the commander of a warship. From the point of view of naval and military etiquette the irresponsibility of officers is quite inadmissible. Article 10 of the Naval Regulations obliges

every officer at all times and under all circumstances to so conduct himself as to uphold the honour of the Russian flag. **Russia.** Once the surrender of a ship is a crime, every officer taking part in it or not opposing it is guilty."

The Prosecutor then recalled the words of Napoleon: "The man who, capitulating, orders arms to be abandoned and those who obey are equally traitors, and deserve to be punished accordingly." Submitting that such is the point of view of sailors to-day, the Prosecutor referred to Admiral Rojdestvensky's statement:—"It was afterwards quite clear to me, that, desiring at all events to preserve my life, officers of unimpeachable bravery committed an offence punishable with death, lost their right judgment and sacrificed their honour as sailors." "The words," continued the Prosecutor, "undoubtedly represent the point of view of the Admiral; the responsibility for the surrender lies with all the officers and not only with the commander. At the present time even the accused recognise their mistake, and understand that it is not right or necessary to blindly carry out every order of a superior. Thus, if the law is properly interpreted, it is impossible not to come to the conclusion that not only the Admiral and Captains, but also the other officers must, under certain circumstances, be answerable. However much the want of encouragement or prohibition of all personal initiative of our officers may be dwelt on in excuse, the Court is not bound to pay attention to such arguments. It is not here a matter of over-subjection, but of a weak feeling of duty on the part of many officers, of a certain intellectual laziness, if one may so express it. Why do those who now refer their actions to the habit of blind obedience to the will of superiors, far from this, not only express themselves with contumely, but even argue with their superiors, and are insolent to them? Why do they carry out orders only when it is to their own advantage? However sad the fact may be, nobody maintains that at the present time there is a high state of discipline in the fleet. The question is now rather as to the license which officers and crews allow themselves.

"No one disputes that if a commander loses his reason the officers are justified in replacing him; there have been precedents. Why, I should like to ask, should not officers do the same with an officer who loses his sense of honour and acts in a cowardly manner?"

The Prosecutor then went on to the question of the proportion of guilt of each of the accused, and dwelt on their characters and on the arguments raised in their favour at the preliminary enquiry. "First Captain Klapey de Kolong was an excellent man, but how were his qualities of flag-captain shown? By the most complete confusion of mind in the hour of danger, by reliance on the Admiral for empty directions, when the latter was bleeding from wounds. What was the reason of his extraordinary devotion to the Admiral, for the sake of which the surrender of the "Bedovy" was decided on? Was it not to avoid the necessity (in the event of a successful cruise to Vladivostock) of despatching a telegram to St. Petersburg to the following effect: "The Admiral and Staff are at Vladivostock, but where the squadron is is unknown"? It appears not to have entered the head of the Chief of the Staff to try to reach another Russian ship, although there was a possibility of so doing, but he went instead on board a torpedo-boat, which he surrendered to the enemy, covering himself under the Admiral's name. Is this the way to fulfil a naval duty?

"One must have lost all sense of shame," continued the Prosecutor, "to make such statements as Second Captain Baranov has made to the Court. Everything was done by others, all the dispositions on the torpedo-boat

were made by the Flag-Captain, consequently all orders issued from the Admiral, to whom this same Captain **Russia.**

Baranov was much indebted in the service. He (Captain Baranov) prepared for action and "gave over" the torpedo-boat to the Japanese unexpectedly for himself, as is to be understood from his own evidence. It is in vain that flattering certificates of character are presented to the Court; all these certificates relate to peacetime. As regards war renown, Captain Baranov is only known through the circumstance that he was bound by the orders to assist the "Suvorov," and that the torpedo-boat "Bedovy" loitered about, no one knows where, without having received any damage or suffered any losses, without having fired a single shot, and another torpedo-boat which ventured itself, took off the Admiral and Staff from the sinking battleship, without even knowing that this burning hulk was the "Suvorov," and that the Admiral was on it. . . .

"Colonel Philipovsky," according to the words of the Prosecutor, "may be a good navigating officer, but is it possible to doubt that he was the evil genius in the surrender of the "Bedovy"? There is not a single witness that does not mention him in this capacity. The Colonel did not display any particular personal bravery; the central part of the "Suvorov," from which he was taken off on to the "Buiny," was, of course, full of smoke; it was hot there, splinters flew there; but still it was the least dangerous place on the sinking battle-ship. There is no ground for seeing any particular valour in the fact that Colonel P. remained there obstinately. It was remarkable that he literally forgot everything except that he felt ill, being overcome by the gases. In his (the Prosecutor's opinion) it was not by gases that Philipovsky was poisoned, but by an inalienable thought of surrender."

Of the younger officers of the staff the Prosecutor only referred to Lieut. Leonteff, who denied all participation in the surrender, but, not to mention anything else, turned the crew from the guns and untangled the folds of the flag of St. Andrew when it was lowered. After referring to the candid statements of Sub-Lieut. Dechinsky,¹ the only officer of the staff of the "Bedovy" who was in a helpless position owing to wounds (the fingers of both hands torn off), the Prosecutor expressed his conviction that if there had been a single one amongst the officers who had called on the rest to fight the other young officers would not have allowed the torpedo-boat to surrender. But such an officer was not to be found amongst them; all were silent and consequently guilty; it is impossible not to be answerable for such proceedings. However, it is unquestionable that the degree of responsibility is different for officers of ten years' service or more, who had projected the surrender, and for young sub-lieutenants who had only just left the naval college, where they had perhaps been taught too blind obedience.

As regards Admiral Rojdestvensky, the Prosecutor referred to his own strange position in connection: the Admiral blames himself for everything and the Prosecutor has to defend him. For justice, a scapegoat such as Admiral Rojdestvensky wanted to make himself was not required. Justice must determine those actually guilty in connection with the surrender of the "Bedovy" and determine the degree of culpability of each and the corresponding punishment. The law requires "death," and does not admit of the possibility of mercy. But it would be harsh to deny the existence in this affair of a number of mitigating circumstances. One course, therefore, remained: intercession for mercy by the Court to the Sovereign.

¹The officer who was defended by his father.

ADMIRAL ROJDESTVENSKY'S LAST WORD.

Russia. "Officers, my judges! I would not trouble you with a defence of myself if the Prosecutor had represented in its correct light to your judgment the offence committed by me, that is to say, the offence of an official fully responsible and alone responsible for his dispositions. But the series of accusations made by the Prosecutor against my former subordinates demands from you, as their judges, a sentence, in my view, harmful to the future of the fleet and the might of the Russian Empire.

"It has been established by a mass of evidence that the "Bedovy" was surrendered because the Admiral, who was at that time fully conscious, so ordered.

"The Prosecutor thought that such an order should have been opposed by the Flag-Captain, Commander and all the officers on board the "Bedovy." He suggested that if even the youngest sub-lieutenant had raised his voice against the criminal order the crew would have followed the sub-lieutenant and all the senior officers would have been attracted by this noble example. But the Prosecutor, after making such an optimistic calculation, and as if himself not quite believing the possibility of success of such a proceeding, that is, of the young officer's influence on the crew, points to the Naval Regulations as prescribing in such cases opposition and even force being used against the senior officers.

"The Prosecutor, in making these declarations, and subsequently accusing all the officers on board the "Bedovy," requires, if I understand him, your sanction to such an order of things as the following:—If an admiral gives a criminal order and does not retract it, the flag-captain should put the admiral under arrest and give another order. If the admiral and flag-captain together agreed to give a criminal order, the commander of the ship should remove them both. If the three above-named officers agreed to a crime, the senior combatant staff officer should forcibly take over the duties of commander and decide in place of the three officers. If all except the youngest sub-lieutenant obeyed the criminal will of the admiral, the duty of this sub-lieutenant would be to incite the crew to throw the whole of the senior officers overboard. If the latter were to find sympathisers amongst the crew a fight would ensue on board between the differing parties, and the result of this internecine fighting would alone decide as to the further course of action.

"If you establish, as required by the Prosecutor, the principle of self-initiation of each officer on the boat, you would legalise, for instance, the right of a Sub-Lieutenant, who had just been given a commission, to decide of his own judgment whether any particular order of his chief was criminal, and that it was his duty to oppose such order, which, after all, might turn out not to be criminal. I hasten to add, gentlemen, that I am far from searching for grounds of inculpability in the order to surrender the "Bedovy." On the contrary, I wish that the disgrace of the crime may be impressed on the minds of future generations by the most stringent punishment of the guilty person. Who this is, Article 279 clearly shows. According to this Article, a single senior officer must be responsible. Such on the "Bedovy" was I. Gentlemen, the fleet and the outraged Russian nation have confidence in you and await my punishment."

Several of the counsel for the defence tried to find in Admiral Rojdestvensky's speech further excuse for their clients, in that Admiral Rojdestvensky, as he himself admitted, had "ordered" the surrender. But the Prosecutor said he did not understand the Admiral's speech in that way, and that if the Admiral actually ordered the surrender he

Russia. should have (after hearing the Prosecutor's speech, in which he laid the blame on others) expressed himself clearer.

If the Admiral "ordered," then all his arguments about previous agreement were nullified, he had offended the accused's best feelings, and "built his house on sand," and concluded: "I am now going through such painful moments that I am unable to speak any more."

SENTENCE.

The Court, after conferring for about ten hours, came to the following resolution:—

First Captain Klapey de Kolong, Colonel Philipovsky and Second Captain Baranov are declared guilty in that they, whilst on the damaged torpedo-boat "Buiny," arranged, in the event of meeting the enemy, to surrender without fighting, and after going on board the torpedo-boat "Bedovy," which was perfectly fit for action, lowered the flag.

Captain Baranov is particularly culpable in that he acquiesced in the position of Kolong, and had not the courage and determination, in his capacity as commander of the vessel, to oppose the dispositions made by Kolong, which resulted in the surrender.

In view of the above, all three, as also Lieut. Leonteff, as an immediate aider and abettor of the surrender (he turned the crew from the guns), are sentenced to be shot.

In view, however, of there being mitigating circumstances, the Court considered it their duty to intercede before the Emperor that the death sentence be reduced to one of 10 years' imprisonment in a fortress.

The Court, having further taken into consideration:—

- (1) That the moral and physical strength of the accused had been injured by a cruise of unexampled difficulty;
- (2) That the accused were morally shaken by the sinking of many of their ships, and by their experience on the capsized "Suvorov";
- (3) That they were led to surrender by their desire to save the life of the Admiral,

thought it its duty to intercede before the Emperor for the reduction of their punishment, outside the jurisdiction of the Court, and accordingly alter the sentences imposed by the Court to the following:—

First Captain Klapey de Kolong—"removal from the Service without loss of rank."

Colonel Philipovsky and Lieutenant Leonteff—"dismissal from Service and loss of certain rights and privileges, including loss of orders, medals," etc.

Second Captain Baranov—"dismissal from Service and loss of certain rights and privileges peculiar to his position."

The Court acquitted Admiral Rojdestvensky, as owing to the condition of his health he was not fully conscious of what went on around him, as also the remainder of the accused, owing to there being want of sufficient proofs against them.

United States.

Departure of the Atlantic Fleet for the Pacific.—President Roosevelt inspected the battle-ship fleet, under the command of Rear-Admiral R. Evans, on the 16th ult., before its departure for the Pacific. The "Mayflower," the Presidential yacht, first passed down the ranks of the fleet, which was lying moored in two lines in Hampton Roads, and then anchored in the centre, when the Admirals and Captains proceeded on board her to say good-bye to the President. About 10.15 a.m. the "Mayflower" weighed again, the fleet also weighing at the same time, and taking station at the head of the lines, she led the fleet out to sea through the Heads, and then returned, the ships firing a farewell salute as they steamed past in single line.

The fleet consists of 16 first-class battle-ships, and is constituted as follows :—

First Squadron.

First Division.—"Connecticut" (flying the flag of Rear-Admiral R. D. Evans, Commander-in-Chief), "Louisiana," "Kansas," "Vermont."

Second Division.—"Georgia" (flagship of Rear-Admiral W. H. Emory), "Virginia," "New Jersey," "Rhode Island."

Second Squadron.

(Under command of Rear-Admiral C. M. Thomas).

Third Division.—"Minnesota" (flagship of Rear-Admiral Thomas), "Ohio," "Maine," "Missouri."

Fourth Division.—"Alabama" (flagship of Rear-Admiral C. S. Sperry), "Illinois," "Kentucky," "Kearsage."

Second Torpedo Flotilla.

Destroyers.—"Whipple," "Hopkins," "Hull," "Lawrence," "Truxton," "Stewart." Destroyer Supply Ship.—"Arethusa."

The torpedo flotilla is not accompanying the battle-ship fleet, but is proceeding independently to Magdalena Bay, making an inshore passage. At Magdalena they will rejoin the flag.

At Magdalena Bay the fleet will further be joined by the first-class battle-ships "Nebraska" and "Wisconsin," already on the Pacific station, and the first-class armoured cruisers "Tennessee," "Washington," "West Virginia," "Colorado," "Maryland," "Pennsylvania," "St. Louis," "Milwaukee," "Charleston," and "California," under the command of Rear-Admiral J. H. Dayton, who is flying his flag in the "West Virginia"; Rear-Admiral W. T. Swinburne, his Second-in-Command, flying his in the "Charleston."

Thus, when the whole fleet has been assembled, it will number eighteen modern battle-ships and ten modern armoured cruisers, constituting by far the most powerful force under one command in any navy of the world.

Although Admiral Evans left with sealed orders, yet the route to be followed by the fleet was published in advance; in fact, in view of the coal-
ing question, it could not well have been kept a secret. The fleet first made for Trinidad, and from there proceeded to Rio de Janeiro, a distance of some 2,800 miles, where it arrived on January 11th. After a stay of ten days in this harbour the fleet will next make for Punta Arena, an anchorage in the Straits of Magellan—another 2,230 miles, and from there it proceeds to Callao, not touching at Valparaiso, an omission probably due to the fact that the anchorage at Valparaiso does not lend itself to the safe mooring of so large a fleet. From Callao the Admiral proceeds to Magdalena Bay, a magnificent sheet of water in Lower California, which belongs, however, to Mexico,

where he expects to arrive on March 14th, and where apparently a stay of some six weeks is contemplated for the purpose of carrying out target practice and other drills, San Francisco being reached on May 1st.

The fleet took in a certain amount of coal at Trinidad and filled up again at Rio. At Punta Arenas more colliers will await the fleet, and coal will be taken in again, both at Callao and Magdalena Bay. A matter of considerable importance for the United States Navy is the fact that not only is the coal the fleet requires on the cruise being carried in British colliers, which would not be available in war time, but that the fleet will have to coal no less than five times before arriving in a United States port, in what also in war would probably be neutral harbours, which would raise a question of some importance.

The Ocean Race of Torpedo-boat Destroyers.—Although the recent ocean race of six of our largest torpedo-boat destroyers, over a 240-mile course from Sandy Hook to Cape Charles, has not turned out to be as great a fiasco as similar races of this kind that have been held in by-gone years in other Navies, it can hardly be called a success. The first race of this character, if we remember rightly, took place some 20 years ago, when a large number of torpedo-boats were sent at full speed over a course laid up the English Channel; and it served mainly to demonstrate the frailty of these craft and the impossibility of relying upon them for any long-continued speed effort over a lengthy course. Such of the boats as were not crippled in the engine room or boiler room, began to show evidence of structural weakness. The race left no doubt that the torpedo-boats of that day were altogether too light for deep-sea duty; and it was partly as the result of this experience that the dimensions and scantling of torpedo craft were increased, and the torpedo-boat developed into the dignity of the torpedo-boat destroyer. The increase in size since that date has been steady, the displacement having gone up from 80 or 100 tons to from 300 to 400 tons, while the latest British destroyers are of 500 tons displacement. But even the modern destroyer appears to be unable to maintain full speed for more than a few hours at a stretch. Probably the best work that has been done of late years was the deep-sea service of the Japanese destroyers during the operations at Port Arthur, when these vessels kept the sea, except for occasional visits to a naval rendezvous, through all the stormy months of the winter blockade. It is certain, however, that most of this service was performed at a moderate cruising speed.

TORPEDO-BAT DESTROYERS IN THE SANDY HOOK—CAPE CHARLES RACE.

—	Length.		Beam.		Draught.		Dis- placement on Trial.	Maximum Coal Supply.	H.P.	Trial. Speed
	ft.	in.	ft.	in.	ft.	in.	Tons.	Tons.		
Whipple ...	248	0	22	3½	6	0	481 ¹	177	8,300	28.24
Truxtun ...	248	0	22	3½	6	0	481	177	8,300	29.58
Worden ...	248	0	22	3½	6	0	476	177	8,300	29.86
Hull ...	238	9	23	1½	6	0	449	165	9,119	28.04
Hopkins ...	238	9	23	1½	6	0	467	165	8,456	29.02
Stewart ...	245	0	23	1	6	6	439	184	8,000	29.69

¹ Because of the large amount of stores, ammunition, coal, water, furniture on board, these vessels at the commencement of the race displaced nearly 700 tons.

United States.

The division of torpedo-boats engaged in this race contained representatives of the best of our destroyers. The latest and probably the most efficient of the six is the "Stewart," whose dimensions may be taken as representative of the sixteen vessels which compose our destroyer fleet. She is 245 feet long, 23 feet 1 inch in beam, and draws 6 feet 6 inches at normal draught. Her displacement on trial was 439 tons, and her trial speed 29.69 knots an hour. The great disparity between the trial speeds of these boats and the speeds which they are able to develop on a sudden order for a run under full power, is to be attributed: First, to the rapid all-round depreciation due to the light construction both of hulls and engines; secondly, to the fact that, as in the present case, the hulls are frequently foul because of the lengthy absence from dry dock; and thirdly, to the fact that in the cruising condition they are so weighted down with ammunition, general stores, coal, water, and the furniture necessary for living accommodation, that they not infrequently displace fully 50 per cent. more than they did on trial. Thus the "Hull," when on trial, stripped for speed, and with just enough water and coal for the occasion, displaced about 450 tons. On crossing the line at Sandy Hook, she displaced about 680 tons.

The boats started abreast across an imaginary line drawn from the Sandy Hook lightship at 8.33 in the morning. Each vessel, judging from the blowing off of the safety-valves, was carrying a full head of steam, and they were speedily hull down to the observers at the Sandy Hook station. Although the boats were credited with trial speeds of from 28 to nearly 30 knots an hour, it was not anticipated that they would average more than 22 or 23 knots an hour over the whole course. This should have brought them into Hampton Roads at about six o'clock the same evening.

The winner of the race was the "Worden," whose time, taken by the American fleet as she passed the Cape Charles light, was 7.40 p.m., the elapsed time for the run being 11 hours and 7 minutes. This works out at just 21.6 knots average for the whole distance—a rather poor showing for the crack boat of half a dozen supposed 28- to 30-knot craft. The "Worden" was being closely pressed by the "Hopkins," when suddenly off Hog Island the latter broke a propeller strut, and was completely disabled. The propeller, thrashing wildly around, tore a hole in the after compartment, and the "Hopkins" had to signal for assistance. Her after bulkhead held, fortunately, as did her pumps, and with the aid of a line from the "Whipple" she was able to reach Hampton Roads at eight o'clock on the following morning. It is only fair to state that the "Hopkins" and "Whipple" had averaged a higher speed than 21.6 knots up to the time of the accident, the "Whipple" slowing down subsequently.

The other boats made a pitiful showing, the "Hull" taking 16 hours, the "Stewart" 21 hours, and the "Truxtun" 22 hours to cover the 240 knots.—*Army and Navy Journal*.

MILITARY NOTES.

Home.

The following are the principal appointments which have been made :—

Generals.—Sir J. D. P. French, G.C.V.O., K.C.B., K.C.M.G., to be Inspector General of the Forces.

Lieut.-Generals.—H. L. Smith-Dorrien, K.C.B., D.S.O., to be General Officer Commanding-in-Chief, Aldershot Command.

Major-Generals.—Sir R. C. Hart, V.C., K.C.B., K.C.V.O., to command the Cape Colony District.

Colonels.—W. R. Robertson, C.B., D.S.O., from an A.Q.M.G., to be a Brigadier-General, General Staff, and is granted the temporary rank of Brigadier-General whilst so employed; C. R. R. McGregor, C.B., to be an A.Q.M.G.; F. H. R. Drummond, C.I.E., I.A., is granted the temporary rank of Brigadier-General whilst employed as Inspector-General of the Imperial Service Troops.

Annual Practice of Horse and Field Artillery.—As some misapprehension appears to exist as to the system to be followed in making arrangements for the annual practice of the Royal Horse and Royal Field Artillery for 1908, the Secretary of the War Office notifies that the following are the lines on which practice camps will be conducted :—

The distribution (by Divisions) of the Royal Horse and Royal Field Artillery to practice camps is made by the War Office. All further arrangements are carried out by General Officers Commanding-in-Chief, subject to the approval of the Army Council.

This year, and in future, the new commanders of Divisional Artillery will, under their Generals of Divisions and General Officers Commanding-in-Chief, have a particularly free hand in carrying out the training and gun practice of their commands. They will themselves officiate as commandants of the camps at which their brigades attend, and will be assisted in their duties by a permanent staff, including an Instructor in Gunnery from the School of Gunnery.

The Territorial and Reserve Forces Act.—The Special Reserve.—A Special Army Order was published on the 23rd December last. It comprises the scheme for the provision, organisation, and training of the Special Reserve required to supplement the Regular Army, and the application of the scheme to the existing Militia.

The existing battalions of Infantry Militia, 124 in number, will be reduced to 101 battalions, which will be converted into Reserve battalions; the Royal Garrison Artillery Militia will, with the exception of certain corps in Ireland, be converted into corps of Royal Reserve Artillery; the two battalions of Royal Engineer Militia will be converted into Reserve siege and railway companies; while the Royal Army Medical Corps (Militia) will be disbanded.

The twenty-three battalions thus to be disbanded are:—4th Batt. Royal Lancaster Regt., 4th Batt. Norfolk Regt., 4th Batt. Lincolnshire Regt., 3rd Batt. Devonshire Regt., 4th Batt. Suffolk Regt., 4th Batt. Somersetshire L.I., 3rd Batt. Royal Irish Regt., 4th Batt. Yorkshire Regt., 4th Batt. Cheshire Regt., 4th Batt. Royal Welsh Fus., 4th Batt. South Wales Borderers, 5th Batt. Royal Inniskilling Fus., 4th Batt. Gloucestershire Regt., 4th Batt. Border Regt., 3rd Batt. Oxfordshire L.I., 4th Batt. Essex Regt., 4th Batt. Shropshire L.I., 8th Batt. King's Royal Rifle Corps, 9th Batt. King's Royal Rifle Corps, 6th Batt. Royal Irish Rifles, 5th Batt. Royal Irish Fus., 3rd Batt. Connaught Rangers, 6th Batt. Rifle Brigade.

The scheme as embodied in this Army Order has already been outlined, but the following features are noteworthy:—Special Reservists will not be required for the Royal Horse Artillery, but the Royal Field Artillery will on mobilization require a considerable number of Special Reservists. This category will not be required to put the Royal Garrison Artillery on a war footing. A certain number, however, are required in Ireland for coast defence purposes. With this object, the Cork, Antrim, and Londonderry Royal Garrison Artillery (Militia) will be converted into Reserve units of the R.G.A. The field units of the Royal Engineers can be brought to war strength with Regular Reservists, but siege and railway companies will be drawn from the two existing battalions of Royal Engineers (Militia), when converted into Reserve companies of the Royal Engineers. The Regular infantry battalions being taken at normal effective strength, the Regular Reservists will more than suffice to raise them to a war footing; consequently Special Reservists will be required only to make good the loss by wastage.

All the men joining the Special Reserve become Army Reservists, and therefore subject to the same conditions of service and liabilities, including discipline, under the Army Act as Regular Reservists. When called out for training, or on mobilization, they become in all respects soldiers of the Regular Army.

In consequence of the institution of the Special Reserve recruiting for the Militia as a whole will cease after January 15, 1908. On and after January 16, 1908, all enlistments will be for the Special Reserve.

The appendices to the Army Order give the provisional establishment of a training brigade R.F.A.; the stations established as headquarters for brigades; the Reserve units affiliated to brigades; the establishment laid down for each of the 27 extra Reserve battalions; and the periods of training, terms of service, and pay and allowances for all ranks.—*Précis* from the *Times*.

Austria-Hungary. *The School of Musketry at Brück.*—In its April number of last year *Streffleurs Militärische Zeitschrift* contains a study of this school, from which the following information is extracted:—

1. *The School of Musketry in 1906.*—Two important changes in the organisation of the School were introduced in 1906.

Up to the end of 1905 it only had a single instruction troop for the training of cavalry musketry instructors. This troop, in 1906, was changed to a squadron. Thus it has now become possible to attach an instructor, trained at the School, to each squadron of regiments of dragoons and uhlands, or of the Austrian Landwehr, and to each division (group of three squadrons) of hussars or of the Hungarian Landwehr.

Austria-Hungary. On the other hand, as a result of experiments carried out during the three preceding years, in the spring of 1906 the War Administration decided in favour of the Schwarzlose machine gun. Prior to forming permanent machine gun detachments, a nucleus of officers and men with the necessary special instruction should be instituted. With this object a mountain detachment, of four Schwarzlose machine guns, will be formed at the School of Musketry.

740 N.C.O.'s (500 infantry and 240 cavalry) were summoned to the instruction detachments; 90 per cent. of the infantry N.C.O.'s, but barely 60 per cent. of the cavalry N.C.O.'s, were passed fit for appointment as musketry instructors.

The three courses of instruction train, each year, about 350 subaltern officers as musketry instructors. In 1906 the 1st course only included officers of cavalry, artillery, engineers and train. It was thus possible to confine the programme of instruction to the uses of the carbine and musket. The 2nd and 3rd courses were followed by infantry and jaeger officers; the technical part of musketry was reduced as far as possible, so as to give greater time to firing under Service conditions and the conduct of fire in action.

2. *The School of Musketry in 1907.*—The progressive formation of new machine gun detachments determined the War Minister to create, for 1907, a cavalry machine gun detachment at the School of Musketry. The guns are carried on pack-horses, as well as a large portion of the ammunition.

Parallel experiments are conducted between this detachment and the one that will also be transferred to Brück. In the latter the guns are horsed and not carried. These experiments will enable a decision, for the judicious organisation of machine gun to be attached to cavalry, to be arrived at. The School of Musketry in 1907 thus included:—

- 2 Instruction Machine Gun Detachments (1 mountain and 1 cavalry).
- 2 Instruction Companies.
- 1 Instruction Squadron.

The courses of instruction were followed, the first by officers of cavalry, artillery, engineers and train, as in 1906; the second by subaltern officers of the infantry of the two Landwehrs and by 44 fairly-senior captains of the Common Army and of the two Landwehrs, who receive the instruction necessary to become professors of musketry at the Officers' Schools of Army Corps of the Common Army and at districts of the Hungarian Landwehr; the third by subaltern officers of infantry and jaegers. The programme of instruction for these last two courses is similar to that laid down for 1906.

Finally, an important innovation is introduced by the nomination of four Staff officers for each of the first and second courses of instruction. As musketry instruction has become such an important factor in the whole training of the men, it is natural to also give as thorough instruction as possible to the medium of the chief command.

3. *Musketry Regulations.*—The publication of the new musketry regulations was concluded in 1907. The new musketry regulations for cavalry were tried in 1906 in a fairly large number of cavalry regiments of the Common Army and of the two Landwehrs. These regulations afford mounted troops the opportunity of carrying musketry instruction to its utmost limits, as its importance in future warfare has considerably increased with regard to the cavalry.

Austria-Hungary. The regulations for machine gun practice have been published. Its chief characteristic is the large quantity of ammunition allotted for firing practices; 15,000 cartridges per machine gun; that is to say, far more than for an entire infantry company. The experiments which have been taking place with regard to machine guns, since 1902, are thus concluded. Commanders of machine gun detachments, which will be definitely formed very shortly, have now to familiarise themselves with the handling and employment of this unit in conjunction with other arms. The quickest method to arrive at the desired result is for infantry and cavalry and machine guns to carry out firing exercises in common. The publication of the firing regulations for machine guns marks the conclusion of a task undertaken five years ago, on this subject, at the School of Musketry.

4. *Various Experiments.*—The School of Musketry does not merely occupy itself with musketry instruction, but also experiments with all inventions with regard to small arms and machine guns. The following are the most important experiments carried out in 1906:

(a). *Automatic Falling Targets.*—Many inventors show targets of this nature, but few of the latter come up to the requirements laid down for the safety of their management under all circumstances. One target alone worked satisfactorily the whole time, viz., that made by Colonel Schwaab, commanding the 1st Honved Infantry Regiment.

(b). *Uses of Electricity for Working Targets on Field-Firing Ranges.*—With regard to this Dr. Hillischer proposed a system of laying down rails each time, as required, on the field-firing ranges, and to move targets mounted on carriages on them. These latter are put into movement by a motor, to which a wire conducts the electric force. The driver is not, as in an electric tramway, on the motor itself, and thus close to the targets, but, on the contrary, at some distance from them, behind the group firing. The officer superintending the practice may thus, by a simple movement of the crank, cause the target carriages to advance or retire, and the targets to rise or sink. Experiments made with this type in 1906, were renewed this year.

(c). *Firing with Reduced Charges.*—A great number of systems were brought forward to perfect the present methods of firing with reduced charges, but without much result. This kind of practice is only of value when it is organised in the most simple manner. The ranges should be either in barracks or close to the latter, so that these exercises may be practised in all free intervals, even if it is only for half an hour, and that it should not be hindered by any red tape, such as making the men dress as they should for walking out, etc.

(d). *Telemeters.*—Experiments were made with a view to discovering a portable telemeter of small size, which might be used without a measured base. Captain Schaffer, of the 88th Infantry Regiment, introduced certain improvements into the Roksandicz telemeter, which is the regulation one in the Austro-Hungarian Army.

(e). *Machine Guns.*—The Schwarzlose type emerged triumphant from the various trials of different patterns of machine guns. Its chief advantages are extreme simplicity of construction and a comparatively low net cost. This gun, with which the Austro-Hungarian machine gun detachments are at present armed, was subjected to a most exhaustive trial at Brück: in three months four guns of this type fired a total of 266,000 ball cartridges, without having to repair the smallest detail of the material and without loss of accuracy of fire. The experiments carried out with

Austria-Hungary. the machine guns of the instruction detachment resulted in certain alterations in the construction of the new weapons, especially as regards replacing the rifle gun by a carbine one, and the employment, as a tentative measure, of a sighting telescope.

(f). *Field Fortifications.*—Field works form an integral portion of the tactical instruction of the companies of the School of Musketry. Experiments were conducted with regard to the following :

1. Use of the spade in action, not only in defensive, but also in offensive action.
2. Creation of new types of fortification (deep trenches and as small relief as possible).
3. Creation of a new type of infantry tool better adapted for use lying down than the regulation spade. According to some the present spade should be replaced by a single tool capable of being used both as a spade and a pick. According to others, it would suffice to complete the infantry equipment by issuing a small spade with handle to every man.
4. Trials of a new method of carrying the tool (the head and handle separate).

Heavy Field Artillery.—There are at present in Austria-Hungary five cadres for "mobile siege howitzer divisions." These cadres are attached to the 1st (Vienna), the 2nd (Caracow), the 3rd (Przemysl), and the 6th (Komorn) Fortress Artillery Regiments; 1 cadre to each regiment, with the exception of the 3rd Regiment, to which 2 cadres are attached. Each of these cadres consists in peace time of :—

5 officers;
6 non-commissioned officers;
53 men;
23 horses (5 saddle and 18 draught).

On mobilisation these cadres form howitzer divisions composed of several batteries and a mobile ammunition park.

Their transformation into divisions should be carried out during peace. "But as the recruit contingent," says the *Deutsches Offizierblatt*, "cannot be increased before 1908, and as at the present time this could not be done without fresh national concessions to Hungary, it is contemplated to ask for men and horses from the infantry and cavalry necessary to carry out this transformation. The already weak effectives of units will be still further reduced by this measure."

"In war each of these divisions has an approximate effective of 1,100 men, 800 horses, and harnesses 12 guns and about 160 wagons; when together it will form a column about 2 kilometres (1 mile 240 yards) long; its rate of march is 4 kilometres (about 2½ miles) an hour. On the march and in action the division is divided into four groups, viz. :—

- a. Fighting batteries.
- b. Group of first line of battery wagons.
- c. Ammunition park.
- d. Trains."

Austria-Hungary. The ammunition is thus distributed:—

	Rounds.
One-fifth to fighting batteries	480
One-fifth to first line of battery wagons	480
Three-fifths to ammunition park	1,440
Total	2,400

In its number for September last, *Streffleurs Militärische Zeitschrift* shows the advantages of employing automobiles for the transport of ammunition for the siege howitzer divisions.

At the present time the group of first line battery wagons consists of 96 men, 96 horses, 24 wagons for the transport of 480 rounds; and the ammunition park of 216 men, 288 horses, and 72 wagons for the transport of 1,440 rounds.

"This shows that for every five rounds a draught horse is required. . . . The ammunition of the group of first line of battery wagons could be carried on six automobile trains, that of the ammunition park on 15 of these trains."

There should be, in addition, for each battery a motor truck to replace the service supplies wagon, carrying platforms, tools, etc., the weight of which amounts to 2,008 kilogrammes (about 39½ cwt.). This wagon would combine rapidly to its weight-carrying capacity, and its speedy arrival on the position on the conclusion of the reconnaissance is of the utmost importance. "Finally," says *Streffleur's Militär Zeitung*, "it would be of the greatest advantage to carry with one a special matériel for easily crossing ditches, etc., and to carry on the wagons at least a portion of the *personnel*, because, with our heavy artillery, the gunners cannot, like those of other Armies, ride on the wagons on the march. It would not be necessary to purchase more horses for the ammunition park, and the additional cost necessary for the adoption of these trains would thus be counterbalanced. On the other hand, in peace time the employment of these trains would permit of the carrying out of all transport service in garrisons now using horse transport."—*Revue Militaire des Armées Etrangères*.

Germany. *Recruitment of Reserve Officers.* — Reserve officers are recruited from:—

1. Retired or pensioned officers, whose services remain at the disposal of the Government.
2. One-year volunteers; these form the larger portion of the supernumerary officers.

Young men who desire to join as one-year volunteers must have a fairly advanced education and be of irreproachable character. During their year of service they receive a special training, both theoretically and practically, and advance successively to the rank of lance-corporal and supernumerary non-commissioned officer. After a final examination they receive a certificate of proficiency and return to their homes with the rank of candidate officer of the Reserve.

Before promotion to the rank of sub-lieutenant candidate reserve officers must go through two training periods, A and B, of eight weeks each, during the two years following their discharge. During the A period they perform the duties of a non-commissioned officer and receive

a supplementary theoretical and practical instruction, which Germany. is given them by officers specially selected for that purpose.

At the end of the period such of the candidates whose conduct both in and outside the service has been satisfactory, pass a theoretical and practical examination. If they succeed the candidates are promoted to the rank of acting sergeant.

During the B period they perform the duties of an officer and after a final practical examination are classified as follows :—

1. Fit for the rank of officer of the Reserve.
2. Fit for the rank of assistant officer.
3. Retained in his rank of non-commissioned officer.

When they return to their homes those of the first category undergo a ballot of the reserve officers of their district and are finally promoted to the rank of sub-lieutenants of the Reserve, on the condition that they fill this position for three years from the date of their appointment.

Great changes are about to be introduced with regard to the carrying out of the instruction periods of candidate reserve officers. Hitherto commanders of Army Corps distributed, for the A period, the candidates amongst units according to the requirements of the latter in officers or supernumerary non-commissioned officers. As a result of experiments made from 1904 to 1906 the Emperor has decided that, out of the eight weeks of the A period of instruction, the candidate reserve officers shall pass four in a camp of instruction. Assembled, according to Army Corps, in companies about 100 strong, they will be the object of a specially careful training, particularly as squad and section commanders. Each candidate will be given 100 ball and 100 blank cartridges for carrying out field practices and exercises.

The second half of the A period of instruction will be carried out by candidate reserve officers with units, so that they may be able to apply, in combined exercises, what they have learnt in the camps of instruction, and to so complete their training. The B period of instruction will continue to be carried out with units.

Training of Reserve Officers.—During the three years they agree to serve in the Reserve, officers may be called up three times for periods of from four to eight weeks (as a rule eight weeks), which they carry out, up to the present, with units.

According to the new instructions, all Reserve officers who will be called out for a first period of eight weeks will first go for four weeks to a camp of instruction, or else will be distributed into groups of 15 officers placed under the supervision of a cadre of many officers of the Regular Army. Further, there will be formed, by Army Corps, a company at war strength which will be entirely devoted to the instruction of Reserve officers. Every effort will be specially directed to perfecting the latter in the different branches of the service and to exercise them, finally, in the leading of small units at war strength. Their training will be completed by theoretical instruction, and the study of the elementary methods of fighting of their own, as well as of those of other arms. The last four weeks will be carried out in units.

Recruiting Statistics for 1906.—The number of young men who reached the age for military service amounted to 511,209. By adding those put back from 1905 (337,836), from 1904 (256,761) and from previous classes

(39,580), a total of 1,145,386 men is obtained as the full results of the recruiting sources. The classification was made as follows:—

	Men.
Unfit for service	33,327
Exempt from service	921
Put back, emigrants, in excess	658,870
Enrolled in the Territorial (a)	207,935
Army... .. (Non-Combatants (b)	3,158
Enrolled in the Navy... ..	8,902
Assigned to the Recruiting of the Army	82,846
Reserve of the Navy	1,654
Attached to 1st levy of the Landsturm	116,584
Entered as volunteers in the Army (c)	29,828
" " " Navy	1,361
Total	1,145,386

The number of young men who enlisted in the army before reaching the age for military service amounted to 22,174, in which number are included the one-year volunteers.

By adding this last figure to those mentioned under (a), (b) and (c) there remains a total contingent of 263,095 men enrolled in 1906, or an increase of 1,215 men over the contingent for 1905.

Machine Guns.—Several German journals, especially the *Berliner Tageblatt*, announce that the German military authorities have had a large number of new machine guns made, the construction of which has been kept more or less secret.

These machine guns will not be formed into independent detachments, as the former ones were; they will be distributed amongst infantry regiments up to a number which has not yet been decided upon. As they are intended to accompany the infantry in all phases of an action, they will be two-horsed and led. Their teams would, at any rate temporarily, be taken from the artillery effectives, which causes protests from the defenders of the Reichstag's budgetary rights. The military authorities, as a matter of fact, had asked for and obtained an increase in the horse effectives of batteries, which they stated was insufficient, and it is this increase which it is proposed to divert from the credits for which it was given to the creation of a new arm.

The *Militär-Wochenblatt* regards the question from a technical point of view. It concludes in favour of the creation of two quite distinct weapons, provided with an absolutely different *matériel*, but using the same ammunition, the one being 4-horsed machine gun groups of six guns, capable of personal action on a given point, the other extremely light weapons, capable of being carried by one man or by a mounted man, if required, a certain number of which should be attached to all infantry companies.

Machine guns of the former type do not seem, adds the *Militär-Wochenblatt*, suitable for being used in close-range infantry action. It would be impossible to withdraw them from the firing line, once engaged, their teams would become useless, they could not accompany the rushes of the attackers, for they would quickly be recognised, and would offer such a large target that the gunners would soon be put out of action.

Germany. On the other hand, a machine gun similar to the Danish *Rekyl* (Madsen type), which does not weigh more than eight kilogrammes (about 17½ lbs.) could be carried by one man who, with his accompanying ammunition carriers, could not be distinguished from a group of skirmishers. On account of over-heating, the Danish weapon cannot fire more than 300 shots in succession, and in order to be fit for use again requires a rest of from 10 to 15 minutes. This inconvenience which, at any rate in the defence, might be minimised by using artificial means of cooling, does not seem very serious to the German journal if the number of these weapons is so increased that they could not only fire successively during the first phases of the fight, but also be held ready to intervene simultaneously at the decisive moment. The *Militär-Wochenblatt* adds that some of these weapons might be given to artillery to protect its flanks and to keep small hostile patrols at a distance; they would also permit the abolition or reduction in the armament of carbines which it is proposed to give artillery.

Finally these weapons might be used by cavalry patrols to force the evacuation of a defile or of a point weakly held, or to allow them to themselves hold positions of that nature for a certain time. The weapon could be slung from the saddle, its coming into action, which is simply a matter of placing the tripod in position, would not attract attention, and could be effected, as could also its departure, with a rapidity suitable to the method of action of the cavalry arm.

With regard to the creation of cyclist units attached to cavalry divisions, a creation advocated in certain military quarters, the *Kölnische Zeitung* observes that machine gun detachments may be advantageously substituted for them. Their effective in men, with equal fire-power, would not exceed a tenth of that of a cyclist unit, their mobility would be vastly superior, and they would not be stopped or greatly checked in their movement by broken ground; their ammunition supply, too, would present less difficulties. Finally, machine gun detachments would escape the serious defects of cyclist units, viz., immoderate length in column of route (1-100 kilometres, or about 1,122 yards, for a battalion), and the considerable time necessary for their deployment.—*Bulletin de la Presse et de la Bibliographie Militaires, Revue du Cercle Militaire.*

Japan. *Reorganisation of the Army.*—It is well known that on the outbreak of the recent war the Japanese Army consisted of altogether 13 divisions (1 guard and 12 line), which were each reinforced by a reserve brigade. During the war four more divisions were formed, the 13th, 14th, 15th, and 16th, which after the war remained, the 13th and 15th in Corea, and the 14th and 16th in Manchuria. Since then the 13th and 14th Divisions have been brought home, and will be followed by the other two divisions as soon as the new corps of occupation have been formed. These latter will, as are the Formosa troops, and the brigade of occupation in China, be taken from specially selected men of the divisions, who are discharged yearly.

To the total number of 17 divisions then in Japan, two more, the 17th and 18th, will then be raised, so that the Japanese Army will then have in all 19 divisions as against 13 she had before the war, which will be an increase of about 46 per cent. According to the Treaty of Portsmouth, Japan has the right to maintain 15 men per kilometre, or about 15,000 men in all, along the Eastern Chinese Railway. For this purpose six infantry

Japan. battalions, with artillery and machine-guns, from the reserve of the regular army, will be used. This will make up a force of only about 7,000 men. It would appear that in peace-time the present divisional distribution of the Army will be maintained, and that army corps will not be formed. The division, then, will be the largest unit in peace-time. In war these will be formed into four armies of from five to four divisions of the regular army.

Cavalry.—It seems probable that the independent cavalry, hitherto two brigades, will be increased by a new brigade of two regiments of four squadrons each, and the divisional cavalry regiments will be increased from three to four squadrons. As the cavalry for the new infantry divisions has also to be formed, the proposed changes indicate an increase in cavalry of more than 50 per cent. For budgetary reasons these changes will be carried out gradually. The poor horse *matériel* will be improved by horse-breeding, by the purchase of stallions from abroad, by the reorganisation of the stud farms, etc. It is worthy of note that the creation of mounted infantry seems to have been abandoned.

Horse Artillery.—On the other hand, six horse artillery batteries will be gradually formed, every two of which will be grouped together, so that each of the three independent cavalry brigades will be able to have a group of two batteries. The events of the war must have very clearly demonstrated the absolute necessity for attaching horse artillery to the independent cavalry, for Japan had no horse artillery before the war, and that improvised during its course did not fulfil expectations.

Heavy Field Artillery.—The creation of two heavy field artillery brigades of from two to three regiments of six batteries of four guns each appears to have been decided upon in principle. This year only one brigade of two regiments will be formed; one regiment of 15-cm. Q.F., and the other of 12-cm. Q.F. howitzers. The *matériel* will be provided by the Creusot works, which have recently received an order for forty 15-cm. and thirty 12-cm. guns. Trials are being made of a 10·5-cm. Q.F. howitzer, constructed in the Osaka arsenal. If this gun is finally adopted the 12-cm. howitzer will probably disappear from the armament of the heavy field artillery, which will then only consist of a fixed proportion of 15-cm. and 10·5-cm. howitzers.

Engineers.—There is no question about increasing the proportion of this arm, as the experiences of the war proved that the present distribution of three companies to each division was ample, provided they were only employed on work which the infantry was not capable of performing with the means at their disposal. The four railways' companies will, however, be increased to 16, so that on mobilisation it will be possible to give one battalion of four companies to each army. The recent campaign in Manchuria, where roads were infrequent and very bad, except when the ground was frozen, proved the incontestable advantage of railways for the supply of ammunition and food pushed up immediately behind the troops and keeping pace with their advance.

Balloonists.—There appears to be no hurry with regard to the organisation of balloon sections. At the present time there is a provisional detachment of 170 men, whose commander is at present going through a course in Germany with the balloon battalion. The detachment itself is attached to a telegraph instruction battalion, and is carrying out experiments with two German models. When the experiments have been concluded it is probable that four detachments, one for each army, will be formed.

Japan. *Telegraphists.*—The three telegraph companies will be increased to eight, so that each army may have two. There is already an experimental company for wireless telegraphy.

Bridging Matériel.—In order to be able to transport the heavy field artillery, etc., over rivers, heavy bridging matériel for a length of bridge of 300 metres will be provided. The divisions will retain their present light matériel, but their length for bridge will be reduced from 144 to from 40 to 50 metres.

New Rifle.—A considerable number of rifles having been condemned after the war, it has been necessary to consider of renewing the small arms; at any rate, partially. It was at first intended to give an automatic rifle to the Japanese infantry, and a number of inconclusive trials were made of various known types. Under these conditions, and temporarily shelving the question of an automatic rifle, it has been decided to manufacture an Arisaka rifle in accordance with the experiences of the recent campaign. This weapon will commence to be distributed during the present year, the reserves still using the old rifle, model 1897.

New Gun.—As regards the field artillery, it has been decided to re-arm it with a Krupp barrel recoiling gun of greater execution and range than was possessed by the former Arisaka gun. Details of the construction of this gun are not yet forthcoming. It is, however, believed to be of the same type as that furnished to the Swiss Army by the same firm.

Mountain Artillery.—As soon as the changes in the organisation of the mountain artillery have been carried out, a modern re-armament of the same must be considered. During the late war the field and mountain guns had the same calibre and the same projectiles, only the amount of the powder contained was necessarily different. It is probable that the mountain artillery will be given a 7.5-cm. barrel recoiling gun, such as has recently been constructed in the Krupp works. The batteries will be grouped into two or three independent brigades, which on mobilisation will be distributed amongst the units in the armies, according to the nature of the country in which they are operating.

Machine Guns.—Although the Hotchkiss machine gun rendered good service in the late war, their use on the battle-field itself is about to be abandoned, and they will be reserved for the defence of works only. The Rexer machine gun will take its place on the battle-field, as that gun can accompany the infantry in the attack and move with the firing line itself.

Two Years' Service.—Excellent results having been obtained at dépôts during the war, for the rapid preparation of recruits to take the place of casualties, when in six, four, and even three months, infantry recruits were trained who behaved excellently under fire, the present draft of the budget submitted to Parliament contains a request for the credits necessary to put in force a two years' service for the infantry alone, the period of service for all the other arms remaining three years. This measure will increase by about one-third the number of men who pass annually under the colours, and will ultimately allow the organisation on mobilisation of the *kobi* (reserve army) divisions, replacing the brigades laid down in the present mobilisation plan. The present recruiting regulations will have but a few small changes of detail made.

The number of young men who reach the age of 20 in 1907 amounts to more than 520,000. From 110,000 to 120,000 will probably be enrolled. Discharges take place from the 20th to the 25th November, and the calling out of the recruits from the 10th to the 15th December. Japan's resources in men are already considerable, and are increasing. At the

Japan. last Official Census in 1903, the population, without including the island of Formosa, amounted to 46,732,138 souls, of whom 23,600,931 were males.—*Précis from Jahrbücher für die deutsche Armee und Marine and Revue Militaire des Armées Etrangères.*

Roumania. *Military Training of Youth.*—A law, laying down the military training of youth, has been in force since April last in Roumania, and it is hoped that this Government organisation will materially lighten the training of the troops. The chief provisions of this law are the following :—

1. There will be a special corps of military school instructors, who will be responsible for the corporal and moral training of youths in the schools. The instruction must consist of practical exercises, the teaching of patriotic and military matters and target practice.
2. Military training is obligatory for elementary, middle and professional schools. The results will influence the placing in the upper classes.
3. The kingdom will be divided into school districts similar to the territorial districts.
4. An infantry officer of field rank will be at the head of the military instructions, with the rank of Chief Military Instructor of Roumanian State and Private Schools. He will conduct the military training of youth according to the programme laid down by Ministry of Public Education.
5. The Chief Military Instructor will have under him a civilian school inspector, called Chief School Inspector of the Corps of Military Instructors. He, further, has under him: 1 captain as assistant, 1 administration officer, 5 captains as managers of school districts, 38 captains or first lieutenants as sub-district managers, and 120 non-commissioned officers and a number of privates to assist in the military training of youth.
6. The Chief Military Instructor and his assistant must be officers of the Regular Army, all the remaining officers belonging to the Reserve. Non-commissioned officers may belong to either the Regular Army or to the Reserve.
7. There will be a Military Instructor for each of the elementary and professional schools in parishes, who will be selected from the officers in the garrison, the middle schools and professional schools in towns will also each have an officer and the necessary number of trained instructors, who will be taken from the troops in garrison. Private institutions and schools are obliged to maintain, at their own cost, a civilian instructor, who must be in possession of a military certificate of proficiency.
8. Military School Instructor will attend a training course of from 30 to 40 days every year at Bucharest.

A committee consisting of officers and of members of the Education Department were entrusted with the drafting of a programme for the

carrying out of the training of youths. According to this scheme the military training will take place from the ages of ten to twenty years, viz., until their entry into the army. As regards physical training, the requirements are gradually increased, and consist of gymnastics, games and simple drills and fencing. For target practice the cross-bow and saloon pistol and later a shortened military rifle will be used. Moral training, especially as regards the awakening of patriotic sentiment, will be carried out by means of national songs, instruction in patriotism and in the heroic feats of arms of their countrymen, national festivals, etc.

The committee on the programme of training are further of opinion that every member of a shooting or drilling society who is over 15 years of age shall be excused from attending the Government training course. They must, however, give satisfactory proof of sufficient military training by undergoing an annual examination.—*Militär-Wochenblatt*.

CORRESPONDENCE.

THE MAN WHO MUST SHOOT.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

Sir,—Some people say that every able-bodied man in the British Isles should know how to use a rifle; others appear to think differently. It is a question that concerns the Nation at large, whether the public choose to recognise the fact or not.

However important we, as soldiers, may consider this dream of the future, I think it more profitable at present to devote our energies to the man who *must* shoot, without quibble or contradiction, as he is within our grasp, and no dream.

Our Regular Army, cavalry and infantry, shoots well, but might, I am convinced, be made one of the best, if not the finest, of the shooting armies of the world. There are difficulties to overcome before reaching this point, but we can surmount them if we really mean to and our hearts are in the work. I will refer to them later.

Some years ago rifle shooting was possibly looked upon, not only as the special rôle of infantry, which it was and is, but almost as a prerogative which cavalry had neither the wish nor the right to question. That day has passed. Shooting may be the *raison d'être* of infantry, but it is the standby and finish of cavalry. The Russo-Japanese war teems with evidence to this effect, and we find such comments on that campaign as: "In battle the Japanese employed their cavalry in a logical manner; that is as a force of which fire is the essential mode of action, and which is capable of moving to any given spot with rapidity."

I suppose it is allowed that we want, in the Regular Army, with which I am now dealing, uniformity and consistency, rather than a mixture of excellence and weakness. But good, and even brilliant, shots we always have in some proportion; if, then, we can eliminate the weak and doubtful, we at least go one better. In other words, our worst shots will be useful.

The expression, "eliminate," must, of course, be read to mean the raising up, not the weeding out.

The foundation of good shooting is the instruction of the recruit, so we must begin with elementary work, which is the vital point in his education. His shooting depends on the manner in which it is carried out. The officers and non-commissioned officers involved are therefore responsible for a great deal. If the work between the instructor and the recruit be brought somewhere near perfection, as the musketry regulations evidently intend, we have our level-shooting army at once. But this "if" means all the difficulties with which the instructor has to contend. We seldom hear them referred to, and probably only those officially connected with the subject, or those who have been through the hard work of teaching, give much thought to such difficulties.

My object is to show what they are, how they might be circumvented, and the immense results that must accrue if we succeed.

Were I to assert that we can have an army without an indifferent shot, I should probably be consigned to a place where the rooms are padded and keepers not unknown. I do not say it. I do assert that the percentage of such shots can be reduced to insignificance.

An instructor has now the power of retaining recruits until their education is satisfactory, i.e., until they are free from bad habits. This rule, which did not always obtain, is an enormous boon to both instructor and recruit.

The difficulties are, generally, want of time, suitable weather, range accommodation, and the material the instructor has to work on.

The training is entrusted to the second-in-command, the Adjutant and Assistant-Adjutant. I presume the work of the first is chiefly supervision and administration: his position in the battalion justifies such belief.

Qui facit per alium facit per se.

Also the Assistant-Adjutant is the range or working officer. Also that he is selected on account of his aptitude for the work—his title notwithstanding.

I only refer to this because, in addition to general aptitude, an instructor requires experience, patience, and untiring energy. The work is such a tax, that I doubt whether the keenest instructor can do himself or his pupils justice for more than a very few hours continuously. He may even be the master of the art of shooting himself, but unless he can bring his mind to the level of a nervous beginner, which is the secret of good teaching, he will never make men shoot.

To take the last difficulty first. The recruit is most impressionable at his first training. If it be sound and the results satisfactory, the more advanced courses will be easy. If it be defective, weeks of hard work may be necessary to recover the lost ground, and, in some cases, it may never be recovered at all.

The man who must shoot, and can, is interesting, but the man who must shoot, and can't, is a study. His moods are so varied, and his performances so erratic. He is also the more important of the two, from the fact that he is so difficult to deal with. If he shoots well, it is against his natural impulse—just like a beginner at games, whose inclination is to acquire bad habits.

He is the same man who was formerly known as the third-class shot, and will remain the same until our rifle and powder change. He, therefore, requires the same treatment.

What is the most fruitful source of the instructor's difficulty?

Several causes of error are set forth in the regulations, and nervousness is referred to as a reason. I do not think we need look farther afield.

Nervousness—*sui generis*—which we may call range nervousness, is the most disastrous element in the recruit's shooting. Other adverse propensities can be easily discovered and cured, but nervousness is the instructor's insidious enemy.

The indications or results of this are, that the trigger is snatched at, or the shoulder moved to meet the discharge, as suggested in the regulations: to which may be added—or both eyes are closed, or the head bobbed, when the trigger is pulled, not pressed.

Here is one proof, amongst many, that bad shooting in a recruit arises from nervousness. A certain number of men make better scores at rapid than slow practice. Why? Because in the former a nervous shot has not so much time to become over-anxious.

And what a hold these bad habits, if allowed to develop, can obtain over men. I have seen a squad of indifferent shots firing with Morris-tubes, which have no more recoil than a pop-gun. These men reproduced all the infirmities they suffered from when using a ball cartridge.

It may be objected that I insist unduly on facts that are not denied. But do we always treat them as they deserve, or as if we believed them? I have heard a man, who was suffering from nothing but range nervousness, advised to aim at this or that part of the target, as if he were a marksman. It would have been equally useful to tell him to aim at the moon.

The German regulations devote three pages to the manner of pressing the trigger. I have read those of the other European nations, but the German's are worth quoting. Here are some extracts:—"The only way of testing whether the soldier understands the manner of pressing is by watching the joint of his finger. When the soldier has got a good aim, his fear of losing it inclines him to pull the trigger suddenly, instead of pressing it steadily. In other words, he snatches at it. In expectation of the explosion that follows, and also the recoil, the soldier falls into other bad habits, viz., he moves the head forward, shuts the right eye, or brings the right shoulder forward: in other words, he bobs. The faults of snatching and bobbing are not always outwardly perceptible, and escape the supervision of the instructor at the moment of discharge. These mistakes must be fought against with all energy, if the soldier cannot make up his mind to press the trigger directly he has got his aim. With the obtaining and retaining of the aim, a gradual and scarcely perceptible bending of the first finger begins to affect the pressure of the trigger, so that the explosion occurs without the soldier knowing the exact moment when it is going to happen."

Such regulations obtained some years ago, but I do not suppose have altered in this particular.

Now, I hold no brief for the German School of Musketry, but maintain that these are the words of a practical man, whose business it has been to make men shoot. They go to the root of the trouble at once, by recognising range nervousness.

We must remember that it is not every officer or non-commissioned officer who finds target practice attractive, much less the strain of forcing men to shoot well. The Assistant-Adjutant should be allowed to select and retain the non-commissioned officers who work under him. Unless the training be carried out by the right men, in the right way, and, above all, in the right spirit, it loses half its value.

Lieutenant-Colonel (now Major-General) Auld said, some years ago, in connection with the musketry training of Germans, "I have been struck particularly with the great care given to each individual man. They do

not trouble to make a man fire in any strict military position, but from the attitude that enables him to fire steadily."

Here again we touch sound principles. Once make a man steady, and then you can do anything with him.

Our musketry regulations have been compiled with great care. In fact, no important point remains untouched. But regulations cannot enter into all the *minutiae* of instruction that must be employed by those who aspire to make men shoot, any more than experience can be bequeathed, or imbibed, by a short course at the school of musketry. Formerly, in India, and, I think, at home, the musketry instructor generally had the advantage of first holding the appointment of assistant musketry instructor.

Out of any squad of recruits some men will shoot well at their first essay. Others will begin badly, but improve later. It is simply a matter of nerves. Some harden, others relax, and both require individual attention.

Of course, it is impossible, even if space allowed, to suggest the different methods employed by an instructor when dealing with the above cases. There are one or two golden rules that no young instructor need be too proud to accept:—

1. Be sure your staff understand their work, and what you expect of them.
2. Never lose your temper with a man so long as you believe he is trying: and most men do try.
3. Put yourself in the same position as the recruit, physically, and your words into the most homely language you can command.
4. Never despair till the last shot has been fired. Some men only become steady at the expense of much ammunition.
5. Try to find out each man's weakness, and work on it.

Some young officers who shoot well with a gun are at first unreliable on the range.

I believe any kind of snap-shooting for a recruit tends to make him unsteady, if, indeed, it does not foster those very habits that we wish him to avoid.

Sir Cornelius Clery says, "Successful practice must always over-ride antagonistic theory," and I think snap-shooting should be reserved for a different stage of musketry. An officer of the Hythe Staff once said to me, "You cannot expect a recruit to put in practice the unconscious pull-off." We can, at any rate, aspire to it, and there is a considerable margin between that and bobbing.

There are many wiles that can hardly be included in the musketry regulations, whereby a man may be weaned from bad habits, and provided they include no material help and reach their end, are not only right, but necessary.

At golf we say, "don't press"; at musketry, "don't pull."

I am the last to suggest a recrudescence to discarded systems, as most of our changes and innovations have conduced to greater efficiency. At the same time, is it wise to condemn any part of a system because it is old? Although the Assistant-Adjutant deals with recruits only, his position and appointment should be made at least as important, desirable, and as much sought after, as was that of the old regimental instructor.

Any system, be it new or old, that brings kudos, or the reverse, uniformly with merit, is sound—tends to efficiency, zeal, and what we now insist on, professional enthusiasm.

Give the musketry instructor a fair chance! Don't suspend his course when once it has begun. Don't stint him in time or subordinate instructors. Encourage him to become a specialist, for the moment, at any rate.

Why do I suggest this? Because I believe that it is very doubtful whether the shooting of the British Army, as a whole, has improved at anything like the same rate as our other trainings, despite new regulations.

We hear that the fire of the Japanese infantry, in the late war, was amazingly rapid, but wanting in accuracy. This means endless ammunition without corresponding results.

Do the Hythe Staff feel satisfied that their regulations are accepted and practised in such a way that they do the recruit full justice?

Give the recruits' course the prominent place it is entitled to, and we may sleep comfortably as regards the further training. Far better allow a proved shot to miss a course than hurry a recruit.

Some of these ideas may clash with big parades and other natural demands, but we cannot have it both ways.

The difficulty of time often hinges on range accommodation. The latter may be limited and some distance from barracks. Shooting, possibly, must begin and end at a certain hour. The party may march off in doubtful weather, hoping it will improve. In these conditions, the instructor decides to begin the practice, though he would not if time and ranges were ample. His men have marched some distance, and he does not like to miss a day.

The question of sufficient and suitable ranges is rather formidable. The amount and shape of ground required, for a good site, is awkward, and not easily obtained. It is nearly always desirable that the party should encamp on, or about, the ranges, when every change of weather can be taken advantage of.

But if so much is to be given up to the recruit, the equivalent should be, not only that third class shots will almost disappear, but the remainder of the Army be found well, not barely, inside the second class.

I have urged, perhaps tediously, but not, I hope, unduly, the importance of a certain stringent training for the recruit. After all, it is only a means to an end, for it is the trained soldier's course that must turn out the finished shot, and bring our Army up to the imperative level.

This further course, interesting and practical because the drudgery is over, could also be made very attractive to the rank and file, by a slight outlay on mechanical contrivances. The idea was suggested some ten years ago, and the gain, by making men take a real pleasure in shooting, would be enormous, compared to the expense.

Perhaps some may doubt the possibility of a really level shooting army, but I cannot believe that anyone will say it is not worth trying for. What a boon to the Service at large, and what a godsend to the general who commands such men in the field.

E. E. CARR, Col.,

Lowland Group R.D.,

Late D.S. of Musketry N.E. District.

Hamilton, N.B.

NIGHT OPERATIONS.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—With reference to Brigadier-General Sir H. Rawlinson's interesting lecture on Night Operations, I should like to point out one thing which he and the other speakers omitted, and that is the necessity of securing guides (even if friendly) during night marches, so as to prevent their escaping. This is well shown in the celebrated picture of the advance of the Old Guard at Waterloo, where the guide is tied by means of a rope to a cavalry man, even in the day time. I remember in the third Afghan War, during a night march with a heavy battery, 32 miles across the Kachi Desert, or Putt, that all our guides gave us the slip, and we were obliged to halt in bitter cold and wait till the moon rose (which it did on that occasion), and trace in the sand the tracks of preceding troops (*à la* Atbara, or Baden-Powell).

As to Colonel Rochfort's remarks about night firing by artillery: with the method employed at Lydd it is just as easy as by day and safer. Another point about night marching is the extraordinary way in which elephants tread in the darkness, even on the shortest rations, as we experienced crossing the top of the Bolan Pass, when after the bullocks had quite broken down we covered 32 miles in 36 hours with a six hours' halt, into Quetta, the ammunition boxes being carried on camels. It seems that elephants should always accompany heavy guns.

Yours, etc.,

L. C. M. BLACKER, Major late R.A.

10th December, 1907.

NAVAL AND MILITARY CALENDAR.

DECEMBER, 1907.

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- 4th (W) 2nd Bn. Border Regiment left South Africa for England in the "Soudan."
 - 5th (Th.) 8th (King's Royal Irish) Hussars arrived in South Africa from India in R.I.M.S. "Hardinge."
 - 6th (F.) IVth Bde. R.H.A. arrived in England from India in the "Rewa."
 - " " 1st Bn. Bedfordshire Regiment left India for Aden in the "Assaye."
 - 7th (Sat.) The Natal Government ordered Dinizulu to surrender.
 - 8th (S.) Death of Oscar II., King of Sweden.
 - 9th (M.) Dinizulu surrendered to the Civil Authorities at Nongoma, Natal.
 - 10th (T.) 2nd Bn. Cameron Highlanders left South Africa for Hong Kong in R.I.M.S. "Hardinge."
 - 11th (W.) 1st Bn. Lancashire Fusiliers arrived in India from Malta in the "Dongola."
 - " " 1st Bn. Bedfordshire Regiment arrived in Aden from India in the "Assaye."
 - " " 2nd Bn. Suffolk Regiment left Aden for England in the "Assaye."
 - 16th (M.) Dinizulu was placed in Pietermaritzburg Gaol.
 - 19th (Th.) 3rd Bn. Worcestershire Regiment arrived in South Africa from England in the "Braemar Castle."

- 21st (Sat.) Mabako, brother to Dinizulu, was arrested at Vryheid.
- 27th (F.) General d'Amade was appointed to succeed General Drude in command of the French Forces at Casa Blanca.
- " " 2nd Bn. Suffolk Regiment arrived in England from Aden in the "Assaye."
- 29th (S.) 2nd Dragoon Guards (Queen's Bays) left South Africa for England in the "Braemar Castle."
- 30th (M.) 2nd Bn. Border Regiment arrived in England from South Africa in the "Soudan."

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires: October, 1907.—"Lieut.-General Luis Maria Campos." "The French Naval Schools. Necessary Reforms: English and United States Reforms" (continued). "The Theme of Actuality: Specialities in the Navy." "The Causes and the Methods of Preventing Fire at Sea." "Organisation of the Admiralty of the United States of Brazil." "The Hague Conference." "The Fire Problem."

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FRANCE.—*Le Spectateur Militaire*. Paris: 1st December, 1907.—“Some Lessons of the Sad Experiences of the Russo-Japanese War” (continued). “Observations of an Old Infantryman on the Northern Manœuvres.” “Study of the various Systems of Military Colonisation Experimented with in France and Abroad” (continued). “Machine Guns Abroad and in France” (concluded). 15th December. — “The Realities of the Battle.” “Some Lessons of the Sad Experiences of the Russo-Japanese War” (continued). “Study of the various Systems of Military Colonisation Experimented with in France and Abroad.”

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 Fight." "The General, Artillery and Engineer Staffs of the Austro-Hun-
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 "Horses."

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ITALY.—*Rivista di Artiglieria e di Genio.* Rome: November, 1907.—Has not yet been received.

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PORTUGAL.—*Revista de Engenharia Militar.* Lisbon: October, 1907.—"A propos of the Creation of the Supreme Council of National Defence" (concluded). "Some Considerations on the Field Aerostatic Park belonging to the Ministry of Marine: Its Description and the Trials made at Tancos" (concluded). "Remarks on the Report of Engineer Rego Lima on his Mission to the Mines of Cassings in 1898" (continued). "The Defence of Coasts."

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Revista Militar. Lisbon: October, 1907.—"The Operations against the Cuamatos." "Chronicle of the Spanish Army." "Questions of Hipology." "The Russo-Japanese War." "Operations of War in the Huilla District in the "Loanda" " (continued).

RUSSIA.—*Voïennyi Sbórnik.* St. Petersburg: December, 1907.—Has not been received.

SPAIN.—*Memorial de Ingeniéros del Ejército.* Madrid: November, 1907.—"The Automobile Service in our Army" (continued). "The Fourth

Fighting Arm." "Graphic Functions." "New Kind of Pincers for Cutting through Wire." "The General Manœuvres of 1907." "Some Views on the Present State of Field Fortification in Battle."

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25th December.—"France and Spain in Morocco." "Inspiration of a Japanese Cornet." "Our Programme for 1908."

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne: December, 1907.—"Division Manœuvres of the 1st Army Corps" (*concluded*). "Initiative of Commanders." "Some Observations on the 1st Army Corps Manœuvres of 1907." "Another Word on the Present Position of Ballooning."

UNITED STATES.—*Army and Navy Life.* New York: December, 1907.—"An Exiled Army." "An Old Army Xmas." "Væ Victis." "Athletics and Education." "On Both Sides of a War." "The Battle of Waterloo." "The Value of Athletics for the Soldier." "The Navy's Coast Artillery Corps."

NOTICES OF BOOKS.

England in the Seven Years' War. By JULIAN CORBETT. London: Longmans, Green & Co. 1907.

It is curious that this, which was above all a maritime war, has been, as a rule, approached and described rather from the military than the naval point of view; considered by the soldier, or by those who write the history of the Army, it must be admitted that Pitt was at least a comparative failure as a War Minister, that he frittered away the strength of the Army in vague and profitless expeditions of mere coastal warfare, and that while most men can understand and appreciate all that he meant to do or actually achieved in direct aid of Frederick, or to our own manifest advantage in America, it is not so easy for soldiers to understand—or understanding to approve—the value of the ceaseless raids in which the Army was engaged upon different points of the French coast. Viewed from the naval side, it is perhaps easier to appreciate Pitt's methods, to

admire and marvel at his strategical use of the fleet, and to recognise and admit that Pitt's war *was* a maritime war, first and foremost, and that "for a right consideration of the war the Army must be regarded primarily as forming an integral part of the maritime force with which it was carried on." One must agree that there is very much to be said for regarding the conduct of the war from this latter standpoint, if for no other reason than because it accounts for and makes clear much that from the purely military point of view must be and remain either difficult to understand or hopelessly obscured. Mr. Corbett claims to have intended in these pages to present the war as it was seen and felt by the men who were concerned with its direction, and it must at once be conceded that in this endeavour he has been entirely successful. We see Pitt's difficulties in the Cabinet, the attempts by his colleagues to thwart and hinder his conduct of the war; we admire the masterful way in which he over-rode all opposition, and it is difficult not to feel a conviction that nothing less than a dictator can successfully manipulate all the countless strings which control the outcome of a war carried on by the sea and land forces, and on either side of the globe. Mr. Corbett explains to us Pitt's system, his conception of combined strategy, showing how there was never any pedantic insistence on "the primary naval objective," and showing clearly the relations of naval policy and action to the whole area of diplomatic and military effort. Again, we are advised—and the lesson cannot be too often driven home—that sea-power of itself is comparatively impotent, that it alone can never decide a continental war, and we are reminded that we could not obtain peace with Spain until fifteen years after the rout of the Armada, nor force the acceptance of defeat upon revolutionary France until ten years after Trafalgar. The actions fought by the Army in the course of the Seven Years' War are so brilliant, the course of the struggle, especially in the New World, so stirs the imagination, that one is in danger of forgetting the work of the Navy; and it is matter of real congratulation that Mr. Corbett has been able for us to break what he calls "the silence of the sea," and to tell us not only of all that took place upon the ocean, but to show us how quick our naval officers were to grasp the significance of the broad issues which often hung upon their presence in a certain place at a certain time; and how frequently events showed that our post captains and our admirals appreciated and understood what Pitt meant and intended by his "system" better than the colleagues who sat with the masterful Minister at the council table.

The value of this book is not, however, merely confined to its historical aspect; one may commend to politicians what Mr. Corbett has to say in the first chapter of his second volume upon command of the sea, the limitations of a battle-fleet and the value of secondary lines, as also at the end of the book, where the lessons of the war are discussed, there is much sound doctrine in his presentment of the strategic value of commerce destruction. In his preface Mr. Corbett disclaims any intention to give us the romance, the drama and the poetry of this fragment of history, and almost goes so far as to apologise for offering a technical rather than an epic treatment of the subject of the Seven Years' War; there was no need for such disclaimer, for, indeed, his work is sure of a hearty welcome from the purely civilian student, who can hardly read without a thrill of the great sea-battle in which Lord Hawke at last triumphed over the ill-luck which for so long had pursued him, as of other brilliant actions by land or sea during the long struggle. To the Services this masterly study in combined strategy will be found to be a real necessity for a

proper appreciation of the war, and soldiers especially should ponder over its lessons, whereby they will learn to better understand the "system" of the imperious Minister and the far-reaching results of the blows which he dealt through the fleets and armies of England.

The maps are few, but sufficient to illustrate British strategy, and the index is particularly well arranged.

PRINCIPAL ADDITIONS TO LIBRARY FOR DECEMBER, 1907.

Standing Orders of the Royal Army Medical Corps. Official. Crown. 8vo. 1s. (Presented.) (Harrison & Sons.) London, 1907.

Dyott's Diary, 1781-1845. By General W. DYOTT. Edited by R. W. JEFFERY. 2 vols. 8vo. 31s. 6d (Archibald Constable.) London, 1907.

Human Bullets: A Soldier's Story of Port Arthur. By Lieutenant TADAYOSHI SAKURAI, I.J.A. Translated by MASUJIRO HONDA, and edited by ALICE M. BACON. Crown 8vo. 5s. (Archibald Constable and Co., Ltd.) London, 1907.

Some Notes on the Campaign in Bohemia, 1866. By Major R. L. MULLEN. 8vo. (Presented.) (R. W. Cullingford.) Colchester, 1907.

A Tropical Dependency. By FLORA L. SHAW (LADY LUGARD). 8vo. (James Nisbet & Co., Ltd.) London, 1906.

Petersburg, Chancellorsville, Gettysburg. (Massachusetts Military Historical Society.) 8vo. 12s. 6d. Boston, 1906.

The Life of John Duke of Marlborough. By Sir A. ALISON. 2 vols. (William Blackwood & Sons.) Edinburgh, 1852.

Manual of Military Law, 1907. Official. 8vo. 2s. (Presented.) (Harrison & Sons.) London, 1907.

Veterinary Physiology. By Colonel F. SMITH. Third Edition. 8vo. 15s. (Baillière, Tindall & Cox.) London.

Arnold's March from Cambridge to Quebec. By J. H. SMITH. 8vo. 9s. (G. P. Putnam's Sons.) New York and London, 1903.

Atlas der Geologie. Bearbeitet von Dr. HERMANN BERGHAUS. Imp. 4to. 22s. 6d. (Justus Perthes.) Gotha, 1892.

RECENT PUBLICATIONS OF MILITARY INTEREST.

COMPILED BY THE GENERAL STAFF, WAR OFFICE.

JANUARY, 1908. PUBLISHED QUARTERLY.

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PREFATORY NOTE.

This Pamphlet will be issued quarterly, in April, July, October and January. Its purpose is to draw the attention of Officers to British and Foreign publications of Military interest which are likely to assist them in their professional work. Copies of the pamphlet will be distributed to the Headquarters of Commands, Educational Establishments, Units and Reference Libraries.

PART I.

BOOKS.

NOTE.—When the price is not given in Part I., it is not known.

HISTORICAL.

Eighteen Months with Russia's Armies in Manchuria. Vol. II. (Achtzehn Monate mit Russlands Heeren in der Mandschurei). By Major Freiherr von Tettau. 483 pp. Seven maps and numerous photographs. 8vo. Berlin, 1907. Mittler. 8/6. (For Vol. I. see page 8 of No. 1.)

This volume continues the narrative from the close of the battle of Liao-yang to the end of the war: it is fully equal in dramatic interest and military value to its predecessor. Major von Tettau continued to be attached to the 10th Army Corps until it was broken up during the battle of Mukden, but he is able to give an excellent account of the action of the other corps from Russian sources, so that the volume is practically an account of the battles of the Sha Ho, Hei-kou-tai and Mukden, from the Russian side. It is very rare that such a clear narrative is obtained from the unsuccessful side so soon after the events; the book might very truly have been entitled "The Causes of Russian Defeat"; it is worthy of the closest study.

A good deal of light is thrown on General Mishchenko's raid; the orders for it are given *in extenso*. The intention is thus stated:—"I have decided to attack the station Ying-kou (where there are great magazines), and to destroy it completely." The raid was carried out at a walk. One charge only was made: against some infantry firing from behind a wall. The greatest care appears to have been taken to keep well away from Japanese troops and their line of communication, the Dalny—Liao-yang railway. Yet among the younger cavalry officers, at any rate, General Mishchenko, though an artilleryman, was considered to be the best cavalry leader in the Russian army, and there seems to have been considerable difficulty in replacing him, for during the forty-one days that he was on the sick list, wounded, no less than eleven senior cavalry officers were tried as a substitute for him.

The geographical objective seems to have been the favourite one with the Russians; as the author says "the objective of the attack was not the annihilation of the enemy, but the conquest of a piece of ground . . . which had no significance in relation to a decisive victory"; "the objective was not to defeat the enemy, or even to separate him from the rest of the army, but it was to drive him behind the old railway dam."

Taking no risks was characteristic of all the Russian operations. General Kuropatkin had a number of fortress guns brought down to the Sha Ho lines by field railway. "Towards the end of February, when the decisive moment approached, the thought uppermost in everyone's mind was to get the guns away in safety as soon as possible." Careful arrangements were made, not only to guard the flanks, but the rear; but the flank detachments (e.g., Dembovski's at the battle of the Sha Ho, which actually overlapped the Japanese left flank) remained in "positions," and would not take decisive action.

The attacks were always of the "progressive" nature; at the Sha Ho, Lieut.-General Stakelberg's army (Kuropatkin's "direction" to him is numbered 10,053 (!) was to begin the battle and obtain a decisive result on the Japanese right flank; when this was attained, the other armies were to attack. The battle of Hei-kou-tai affords another example. General Kuropatkin's "direction" was to the effect that "the 2nd Army should begin the attack alone, and gradually capture the fortifications of the Japanese left wing. The attack of the other armies, which were to hinder the enemy from sending reinforcements to his left wing by demonstrations, was to be dependent on the progress of the attack of the 2nd Army." The tactical ideas of the commander of the 2nd Army were quite in accord with those of the Commander-in-Chief, and he, also, sent his troops into action progressively, with the result that hard fighting was only done by the 1st Siberian Army Corps, whose commander (Lieut.-General Stakelberg) "possessed initiative and enjoyed responsibility (*Verantwortungs-freudigkeit*): thus it happened that only one of the three armies, and only one-third of that army, was engaged, while more than eight-ninths of the Russian forces looked on. Lieut.-General Stakelberg lost 6,891 men, 29 per cent. of the strength of his corps; he was removed from his command and sent back to Russia. He and his corps had been brought from the extreme left of the Russian line to the extreme right, for the special purpose of making a decisive attack.

During the progress of this puzzling battle, the Russians took a "rest day."

At Mukden, on the 6th March, there is the same strange picture: "An army of 370 battalions is to attack; the attack is entrusted to the Right Army of 130 battalions. This army again orders its Right Detachment, 40 battalions, to begin the attack. This detachment directs its Right Column to take a village held by the enemy, and two regiments are sent to attack it; as they do not make progress, the whole army waits and abandons the attack."

There was frequent interference from the higher leaders in the province of subordinates. The Commander of the 10th Army Corps constantly received direct orders by messenger and telephone from General Kuropatkin, which were at variance with those issued to him by the Commander of the 2nd Army, to which the 10th Army Corps belonged. Yet when direction was necessary, as, for instance, when the 6th Siberian Army Corps looked on at the defeat of the 17th Army Corps at the Sha Ho, no instructions were sent.

During the most critical moment of the battle of Hei-kou-tai, Lieut.-General Stakelberg was called on by an "urgent" letter to render statistics as to his strength and equipment, and expenditure of ammunition, to report minutely on his general staff officers, to make recommendations for St. George's Crosses, and give other particulars beloved of bureaucrats. He might as reasonably have been asked to send in a travelling claim (in duplicate) for his march from the eastern to the western flank of the army. His corps, it may be mentioned here, was sent to the left flank during the battle of Mukden, and then marched back to the centre.

The initiative was invariably left to the Japanese. Orders for the offensive, however, were frequently issued overnight "for to-morrow," but as the Italian attaché pointed out, "to-morrow" (*zavtra*) in Russian really means "never." The orders were generally followed by counter-orders: "The attack ordered will not take place."

The middle and intermixture of units at the battle of Mukden seems almost incredible. General Kuropatkin's reserve on the 19th February consisted of (1) the 10th Army Corps (less one brigade), (2) the 72nd Division (with the 10th Artillery Brigade), and (3) the 146th Infantry Regiment. On the 25th February he sent the 146th Infantry Regiment and one brigade of the 72nd Division to the left; on the 26th half the 41st Division (of the 10th Army Corps) to the right, and the remainder of the 72nd Division to the centre. This left him only the 25th Division (of the 10th Army Corps), which he sent to the right on the 1st March. He meantime endeavoured to collect another reserve, asking for an army corps from each army; as the armies were all heavily engaged they could not comply, but sent dribbets: a division, a brigade, even battalions. The troops which were thus collected to repulse the attacks of General Nogai's Army were rapidly grouped together in "detachments"; not a single higher unit of the Army List appears to have fought on the west of Mukden. The "North Detachment," on the 10th March, consisted of 51 battalions, 214 squadrons, and 132 guns, drawn from 11 different army corps, 16 divisions, and 43 infantry regiments.

It is of interest to read that in one of the few successful Russian operations, the counter-attack on Yu-hung-tun at the battle of Mukden, "the Russians abandoned their massive formations, and the Koslov Regiment, which passed close by the place where I was standing, was formed in eight or nine long thin lines, which followed one another at about 80 or 90 paces distance, with from four to five paces between individual men."

In a final chapter, Major von Tetian sums up his experiences and the lessons of the war. With every justification he says: "These lessons are not novelties, they merely confirm what we (Germans) have long recognised as the basic truths of training and leading troops. For us, therefore, the lesson is to hold fast to these truths, and to educate ourselves to be leaders who love initiative and do not shirk responsibility, and, by iron discipline and all available energy, to educate our soldiers to be patriotic, self-thinking and self-acting warriors."

The Russo-Japanese War, 1904-5 (Vom Russisch-Japanischen Kriege, 1904-5). Part. I. By Colonel Fritz Gertsch. 253 pp., 15 maps. 8vo. Berne, 1907. Künzi-Locher. 20/-.

The author was one of the officers sent by the Swiss Confederation to the seat of war, and was attached to the Guard Division of General Kuroki's Army. His Part I, now published, deals with the war up to the end of the battle of Liaoyang, and is a singularly clear and instructive work.

It divides itself into three sections:—Colonel Gertsch's personal observations, the narratives dictated to him by the Japanese, and his remarks. The story naturally covers the same ground as Lieut.-General Sir Ian Hamilton's *Staff Officer's Scrap Book*.

Colonel Gertsch complains of the way in which the attachés with the First Army were treated by the Japanese, e.g., instead of being landed at the base, Antung, they were put ashore at the abandoned base, Rikwah, in Korea. Thence they had to make a four days' land journey at a snail's pace, their servants and grooms being on foot. When there was any fighting they were invariably conducted to some spot where a hill or wood blocked the view, and they only managed to see the troops by escaping from their guardians. "Information with regard to the many events was doled out in miserly fashion and in the veriest outline."

The best maps were withheld from them. Of Major-General Fujii, Chief of the Staff to General Kuroki, the author says, speech was only given him to deceive. He attributes the bad treatment of the attachés to the present Sub-Chief of the General Staff:—"I am quite certain that Lieut.-General Fukushima went a great deal further in his mistrust of us than he was instructed or ordered to do by higher authority."

Of the points brought to light by Colonel Gertsch, the following are amongst the most interesting:—Extraordinary latitude is allowed to Japanese generals and higher regimental officers in the execution of definite orders that have been issued to them. On several occasions the commanders of the 1st Guard Brigade and the 4th Guard Infantry Regiment were given orders to attack and did not do so. "After the divisional general had given his orders, he was obliged to leave their execution to his subordinates. He had patiently to submit when they did not carry them out and had trustfully to suppose they knew what they were about."

Every opportunity was taken in the intervals between the fighting to practice formal drill. "More exact and stiffer drill I never saw." "During the battle, of course, there was little of the drill visible, yet it was never wholly absent. The mili-

tary eye saw its permanent and never-failing effect in the splendid response in every situation and in every formation. Whether on the march in file or in fours, on the battle-field in the formation best suited to the ground, or in action in the firing line, there was always and everywhere the same sure cohesion, the same remarkable endeavour on the part of the men to keep in their places. The reserves which were under cover were commanded in the same sharp words of command, and were expected to move and handle their rifles with the same exactness as on the drill-ground."

He gives many examples to show that nearly all the Japanese generals lost their nerve and will power at critical moments when perhaps one more impulse would have achieved a real success and made the Russians a golden bridge. They were afraid that they might get vicious (*übellaunig*) if pressed.

He attributes the critical situation at Liao-yang on the 1st September to the complete failure of the Guard Division to act after its ill-success on the 30th August:—"It wouldn't move a finger to carry out its task. . . . The men crept into their trenches and ate rice or slept. And on the 1st September they had the humiliation of seeing a neighbouring division (of the Fourth Army) enter the enemy's position in their section." He asserts that the report that the Guard Division attempted to execute the order to cross the Tai-tsu Ho and take Hill 151 is erroneous:—"Such an attempt was never made. In vain Kuraki repeated his order several times, explained, pressed, implored. It appeared too daring to Hasegawa. No step was made."

The Japanese received much useful information from the Russian newspapers, which was telegraphed to them by their military attaché in Berlin. For instance, they learnt the units which had been engaged in a night attack upon them, with the casualties, six days after the incident, this being the time the news had taken to go from Manchuria via Petersburg, Berlin and Japan, and so back to Manchuria.

Colonel Gertsch specially praises the "quick, clever and careful" way in which the Japanese Artillery entrenched itself.

The following, he says, is the organisation of a divisional staff:—"Four general staff officers, viz.: a chief of the staff, one for operations, one for intelligence and one for communications; four adjutants for routine work, the two senior of whom also act respectively as commandant of headquarters and quartermaster, while the two younger officers perform the duties of aides-de-camp to the general if required, one being charged with the replacement of casualties of men and horses, and the other of arms and ammunition. There are besides three medical officers, two veterinary officers, one military law official, and five intendants officers, one of whom is supply officer and paymaster."

The maps supplied with the volume are excellent; that of Liao-yang, on a scale of 1/50,000, being the best that has yet been published.

Report on the Russo-Japanese War, 1904-5 (Informe sobre la Guerra Ruso-Japonesa). By Major Don Alfredo Schönmeier, Chilean Military Attaché to the Russian Army during the war. 162 pp. with 32 plans and sketches in a separate cover. 8vo. Santiago de Chile, 1906.

The report is illustrated by a large number of interesting photographs well reproduced. . . It is divided into two parts, the first dealing with the author's personal experiences, the second with his notes and observations on the various arms, and on the administrative and medical services. Major Schönmeier was first attached to the 9th East Siberian Division, which formed a portion of the 1st Army Corps under Baron Stakelberg, and afterwards he joined the Caucasian Cavalry Brigade under Prince Orbeliani. With these units he was present at the battles of Te-li-sau, Ta-shih-chiao, Liao-yang, Sha Ho, Hei-kou tai, and Mukden, as well as at various minor engagements, of which he gives clear descriptions, devoting special attention to the action of the artillery. He lays much stress on the value of indirect fire, and draws an interesting comparison between the action of the Russian artillery at Te-li-sau, where direct fire was alone employed, and its action a few weeks later at Ta-shih-chiao, when the lessons of the former battle had been understood.

The author criticises the want of co-operation between the various units and also between the various arms of the service. Speaking of the battle of Hei-kou-tai, he notices the very great difference in this respect that existed between the tactics of the Russians and the Japanese, and compares the inactivity of the 1st and 3rd Russian Armies on this occasion with the conduct of the Japanese at the battles of Liao-yang and the Sha Ho, where "each army, each detachment, even the most distant, each within its own sphere of action, operated with surprising energy, which was born of the conviction that all the fractions of the army were lending their assistance by means of a supreme, common and simultaneous effort. The whole of the tactics and strategy of the Japanese was characterised by the employment of the system of mutual support, and it was this that constituted their superiority over the Russians, who never succeeded in changing their methods owing to the fear of responsibility which is innate in every Russian commander."

In the last chapter the author briefly summarises his observations and states his opinion as to the causes of the Russian inferiority. This he believes to have been due to an absence on the part of the officers and men of moral conviction, of enthusiasm, and of interest in the cause for which they were fighting, and also to the defects in the military and moral character of a part of the body of officers, whose military acquirements, education and social condition vary very greatly. Perhaps it is owing to this want of homogeneity that the absence of a spirit of union and of common responsibility is so marked.

The maps that accompany the report are good and illustrate adequately the events described. The reproductions of the sketches issued by the General Officer Commanding the 9th Artillery Brigade to his battery commanders at Ta-shih-chiao showing how the fire of the artillery was to be directed, are interesting.

There is no index.

Reports of Military Observers attached to the Armies in Manchuria during the Russo-Japanese War. Part V. General Staff (U.S.A.). 216 pp. 23 photos. 8vo. Government Printing Office, Washington, 1907.

This volume contains reports on the organization, administration and tactics of the two armies. The account of the Japanese Army, which takes up three-quarters of the volume, is the fullest and most complete that has been made public. Lieut.-Colonel McClernand, the writer of it, comments specially on the fact that the affairs of the Japanese Army are conducted "with much less writing than with us." "In the offices of the Chief of Staff, Minister of War, and their assistants I was particularly impressed by the absence of the numerous bundles of papers so conspicuous in our department," and he attributes this great economy of time and energy to the "total absence of non-military persons" in these offices.

It was stated positively to him that "no written records are required in a company except one book called *chutai meibo*, translated "a company roll," in which is entered the names of men on joining and leaving the company, the names of all killed and wounded, and of those sent home or to hospital, etc.

"At battalion and higher headquarters a book called "*jinchunishish*" (daily record of campaign) was kept. In this was entered everything of importance. . . .

Ration returns were submitted daily; there was a proscribed form, but usually a slip of paper, on which was entered the mere number of rations required, was used.

Returns of strength were made every ten days, in battle daily, if possible. "Company returns are consolidated at battalion headquarters and then forwarded to the headquarters of the regiment, where similar consolidation is made, and so on up to army headquarters."

The men are paid every ten days by a selected non-commissioned officer, who receives the money from the battalion paymaster. A note of the payment is made in each man's small-book by the use of a stamp. Stoppages are rare; they are refunded in cash to the paymaster.

Routine correspondence with regard to administration was carried out direct between the divisional headquarters and Japan and the line of communications, and did not pass through army headquarters.

The photographs exhibit the equipment and transport of the various arms of the service.

Monographs on the Russo-Japanese War. Parts XI. and XII. (Einzelschriften über den Russisch-Japanischen Krieg. Heft 11/12). 123 pp. 4 maps and 7 sketches. 8vo. Vienna, 1907. Seidel. 4/6.

Parts I. to X. were noticed in No. 1, page 7; the present parts deal with the operations of the 1st Japanese Army round Feng-huang-cheng, and present fuller accounts than those originally given in the previous parts of the landing of the 1st Japanese Army in Korea and its advance to the Ya-lu, and of the battle of the Ya-lu. The narrative is very clear and complete, and the maps are excellent.

The Russo-Japanese War: Lectures given at the Russian Staff College. Translated from the Russian. Parts III., IV., and V. (Conférences sur la guerre Russo-Japonaise faites à l'Académie d'état-major Nicolas. Traduit du russe. Fascicules 3, 4 et 5). Part III.: 122 pp. 3 maps. Part IV.: 187 pp. 4 maps. Part V.: 238 pp. 9 maps. 8vo. Paris, 1907. Lavauzelle. 4/2 each part.

Parts I. and II. were reviewed in No. 2, page 7.

The lectures in Part III. deal with the operations immediately preceding the battle of Liao-yang, from the 23rd to the 29th August inclusive, that is to say, with the defence by the Southern and Eastern Detachments of the advanced positions of An-shan-tien, Lang-tsu-shan and An-ping, and the retirements from them which brought about the assembling of the Russian troops on the Liao-yang advanced position.

Part IV. is devoted to the battle of Liao-yang.

Part V. gives an account of the battle of Sha Ho.

In addition to the lectures of Colonel Danilov, Lieut.-Colonel Nesnamov and Captain Markov, the accounts of various eye-witnesses translated from the *Russkii Invalid* are given in appendices: e.g., a statement from Major-General Orlov as to the events of the 2nd September, when his detachment was struck with panic; the observations of Lieut.-General Yilinski, Chief of the Staff to Admiral Alexeiev; and detailed accounts of the actions fought by various regiments, and by Major-General Samsonov's cavalry at the battle of Liao-yang.

The account of the battle of Liao-yang is very complete, but that of the Sha Ho lacks details as regards the part played by the 4th Siberian Army Corps, and the 1st (European) Army Corps in the centre, between the Eastern and Western Armies.

The French translator has increased the value of the lectures by adding a number of useful notes. He particularly draws attention to the interference of General Kuropatkin in the duties of the Army Corps' commanders, e.g., on the 23rd August the Commander-in-Chief, in a despatch to the 10th Army Corps, dictated the movements of its units down to regiments and fixed the size of the reserve which General Sluchevski should keep.

With the Cossacks in Manchuria (Mit Kosaken durch die Mandchurei). By Captain Spaits, 7th Honved Hussars. 372 pp. 8vo. Vienna, 1907. Carl-Koenig. 7/-.

The author arrived at Mukden towards the end of January, 1905, and visited the Russian left flank during the battle of Mukden. The somewhat high-sounding title of the book is hardly justified. It is written on popular lines, and is little more than a series of sketches of the war. But such criticisms as the author makes are short and to the point.

San-de-pu (Caujenu). A strategical sketch of the advance of the 2nd Manchurian Army in January, 1905. By Colonel V. F. Novitski. 70 pp. 8vo. St. Petersburg, 1907. V. K. Shneur. 2/9. See also No. 3, page 23.

The author served upon the staff of the Russian 2nd Army at San-de-pu (Heikou-tai), and in his introduction he states that his pamphlet is based upon the official account of the battle, prepared by the Army Staff. The events of the Russo-Japanese war are still too fresh to allow of detailed and comprehensive study, and the author himself admits that: "Unfortunately, many facts concerning the battle, specially those relating to its tactical aspect, are either inadequately explained or not at all in this official account." Unfortunately, also, the author omits to give the text of the directives, orders, etc., for the action which are presumably to be found in the official report and which he quotes in part. The pamphlet is written in a somewhat violent and aggressive tone, and the chief motive underlying it seems to be a desire to throw discredit upon the higher leading upon the Russian side. Still, the work is of some utility, as affording a general outline of the battle from the Russian side. It is illustrated by somewhat illegible sketch maps.

Human Bullets: A Soldier's Story of Port Arthur. By Tadayoshi Sakurai, Lieutenant, Imperial Japanese Army. Translated by Masujiro Honda and edited by Alice M. Bacon. 270 pp. 8vo. London, 1907. Constable, 5/-.

This is the account of the author's experiences from the day of mobilisation until he was severely wounded in legs and arms on the 24th August, 1904, at the first general assault on Port Arthur. The author's regiment, much to its disappointment, missed the battle of Nan Shan, but took part in the battles of Wai-tou-Shan and Chien-Shan, in the taking of the hill of Ta-po-Shan on 26th and 27th July, in the attack and capture of Ta-ku-Shan on 7th and 8th August and eventually in the first general assault of Port Arthur. The book is purely the story of the author's own experiences, first as a standard bearer of the regiment, and later as lieutenant in the 19th Company of the 3rd Battalion of the same regiment, and though it deals with no questions of strategy and barely touches upon tactics, it is of the greatest interest as a human record. The story is told in a simple, unaffected style, and gives a vivid picture of the desperate struggles of the Japanese in their assaults on the Russian positions.

Perhaps the most remarkable feature of the book is the spirit of intense patriotism and devotion to the Emperor which runs through it, and which, according to the author, was intensified by the Imperial Rescript (given in Appendix B) to the Army and Navy at the beginning of the war. Much has lately been written about the spirit of Bushido, but this simple recital brings it vividly home to the reader. The determination of the troops to die for the Emperor and to avenge their dead comrades; the feeling approaching to shame which animated the author when he emerged unscathed from engagements in which many of his comrades had been killed and wounded; the spirit which impelled each Japanese officer or soldier to help the common cause and one another, all show what enabled the Japanese to effect what they did in Manchuria. The spirit mentioned above is exemplified in this book by many incidents, which are recited in such a way as should inspire others with a desire to emulate those deeds.

The End of the Siege of Port Arthur (Конеч Осада Порты Артура). An epilogue to "The Truth about Port Arthur," Parts I. and II. By E. K. Nojin. 487 pp, with illustrations. 8vo. St. Petersburg, 1907. "Herold," 3 Voznesenski Prospekt. 6/10.

This sequel to "The Truth about Port Arthur," which was produced last year by the same author in two volumes, has been written with the apparent object of extolling the spirit of heroic devotion which inspired the junior ranks of the defenders, and at the same time of assisting in bringing home to the responsible commanders the charge of surrendering the fortress without justifiable cause.

The arrangement of the subject is wanting in continuity, and the book suffers from a total absence of any index or table of contents.

The greater part of the material consists of copies of orders and extracts from the letters and diaries of various subordinate officers, the purport of which it is often difficult to discover.

The proceedings of the last conference held by General Stössel previous to the negotiations for the surrender are given apparently *verbatim*.

Statistics are introduced showing the state of the armament, the sanitary condition of the troops, and the supply of provisions in the fortress during the siege.

In conclusion, the author quotes the charges preferred against Generals Stössel, Reis Fok and Smirnov. The value of the work for historical or tactical purposes is small.

Wellington's Campaigns, Peninsula—Waterloo, 1808-15, also Moore's Campaign of Corunna. (For military students.) By Major-General C. W. Robinson, C.B. 722 pp., with maps and plans. 8vo. London, 1907. Rees, 8/6.

In this volume the previous Parts I., II., and III. of *Wellington's Campaigns* are brought out together. It therefore forms a complete record of Wellington's Campaigns from his landing in Portugal in 1808 till the conclusion of the Waterloo Campaign.

As the parts above mentioned have been before the public for some time it is unnecessary to enter here into details of the contents of this volume, and it will suffice to say that the texts, plans and maps have been revised and a full index added. The book is written in a lucid style, and the maps and plans are clear and good. Though General Robinson does not enter deeply into details of the battles, yet many useful lessons of tactics as well as of strategy may be learnt from a study of this volume, and the saying of the late Colonel Henderson quoted on page 673 should not be forgotten:—"In my humble opinion the campaigns of Wellington not in strategy alone, but in tactics also, are prolific in instruction."

Waterloo. By the late Captain J. W. E. Donaldson, Royal Field Artillery, and Captain A. F. Becke, late Royal Field Artillery. 79 pp., with maps. 8vo. London, 1907. Rees, 2/6.

This is a re-publication of Chapter V. of "Military History Applied to Modern Warfare" by the same authors. The claim made is that the book "perhaps presents to the military reader how the campaign may be advantageously studied." It is clearly written and may be of use to students of the campaign to supplement larger works.

Marshal Turenne. By the author of "Kenelm Digby" etc., with an introduction by Brig.-General F. Lloyd, C.B., D.S.O. 395 pp., with a map. 8vo. London, 1907. Longmans Green. 12/6.

This book opens with a short account of Turenne's early life and of his first military experiences, which began at the age of fourteen. The next chapter deals with the campaign of 1640 in Italy, during which Turenne distinguished himself at the battle of Casal, and in which, at the siege of Turin, occurred the extraordinary spectacle of Prince Thomas of Savoy besieging the French in the citadel while he himself was besieged by the French army, and the last-named were again besieged, in their lines of circumvallation, by the Spaniards. In this chapter some of Turenne's maxims are given, many of which are still applicable.

The next campaign dealt with is that of 1644, in Alsace and the Black Forest, and in this is included the battle of Freiburg, in which the chief command was held by Condé, under whom the French gained a somewhat doubtful victory over the Bavarians.

In 1645, Turenne was defeated by Mercy and the Bavarians at Marienthal, and afterwards the battle of Nördlingen was fought, where Condé was again in chief command and where Mercy was killed; the battle resulted in the retreat of the Bavarians, but the French incurred very heavy losses, and it was largely owing to Turenne that they were not defeated.

The account of the campaign of 1646 in Bavaria is interesting, for although it was bloodless, it displayed to the best advantage Turenne's strategical skill.

With the campaign of 1648, the Thirty Years' War came to a close, and Turenne's activities were transferred to France, where the wars of the Fronde soon after broke out. Turenne fought first against and then for the Court, after the fashion of those times when everybody changed sides continually, and allies one day were desperate foes the next; thus Turenne was now opposed to Condé. The battle of the Dunes, on 14th June, 1658, where Turenne defeated Condé and Don John of Austria, and where English troops fought on both sides, is well described.

The remainder of the book deals with the campaigns of 1672-3-4 and 5, against the Imperialists in Flanders, Holland, Westphalia and Germany, and descriptions of the battles of Salzhelm, Ennheim, Turckheim, and Sasbach are given. At the last battle, Turenne, at the age of sixty-three, was killed.

The author is a great admirer of Turenne, and there seems no reason to doubt that besides being a great strategist and tactician, Turenne bore a character for uprightness, fairness, and lack of avarice which was rare indeed in those days.

The book is well written, and Napoleon's comments on Turenne's operations form one of its most interesting features.

The American Revolution. Part III. By the Right Hon. Sir George Otto Trevelyan, Bart. 530 pp. 3 maps. 8vo. London, 1907. Longmans, Green. 12/6.

This third part carries the story from the beginning of 1777, when Washington after his victory at Trenton, was wintering his exhausted troops at Morristown, to the summer of 1778, which saw Clinton's evacuation of Philadelphia and his retirement to New York.

Although Sir George Trevelyan does not write as a military historian, and omits to give prominence to dates, numbers, and orders of battle, yet he presents an exceedingly clear and vivid account of the military events and of the conditions under which the British and Americans fought, ample enough for a preliminary study of the campaign. His work is particularly valuable, as the history of campaigns in which the British forces have been unsuccessful is difficult of access.

official accounts of them have not been written, and in consequence their study has been neglected. Yet, Lexington and Bunker's Hill, which were dealt with in the first part, bear striking resemblances to Bronckhorst Spruit and Laing's Nek, and many incidents in the second Boer War have their prototypes in the War of Independence fought more than a century before.

Many of the comments made by the author are of distinct military importance:—He states that the average value of the British infantry was much reduced, "according to the questionable fashion of that day, by withdrawing the light companies from ten or a dozen regiments" and forming them into special corps; and that while "the American Army never stopped long in any one place without fortifying it to the verge of impregnability," the British Commander "objected on principle to field works," and, as he said, "never favoured their construction at the head of line, when in force, for fear of diminishing the self-reliance and the well-founded self-esteem of his soldiers."

For the British, the year 1777 is a record of blunders and lost opportunities. Sir William Howe, the senior British military officer in America, during a copious correspondence with the War Office, "while he placed on record his conviction that a large number of additional troops was required in America, confined himself (knowing something of his Government) to asking for a reinforcement of fifteen thousand rank and file, which would raise his army to the indispensable minimum of five-and-thirty thousand effective men." He represented the danger of operating in the New England States where the population was large and warlike, and proposed to take the initiative in Pennsylvania, where the local militia was of little account. He considered that the American Commander would be bound to risk a battle, in order to protect the Capital of the Confederacy, and "My opinion," said Howe, "has always been that the defeat of the rebel regular army was the surest road to peace." When that army was crushed, resistance in these central and New Jersey would collapse, and a majority of the colonists in New York States would probably accept the rule of the stronger; operations could subsequently be carried out, first southwards—in Virginia and the Carolines, and eventually in New England, for their conquest and subjugation. This was a reasonable and practicable scheme.

The Home Government, in reply, promised Sir William Howe eight thousand men, and "sent him twenty-nine hundred, but never a bayonet or a sabre more."

As regards the plan of operations also, they had different views. Lord George Germaine, who controlled the military destinies of the Empire, "from a desk in his public office three thousand miles away" had been placed in this position of practical responsibility "because he could debate, and for no other reason in the world, but he esteemed himself highly as a military authority, although he had long ago (when he bore the name of Lord George Sackville) been dismissed with ignominy from military employment."

Now Germaine "had conceived the ambitious hope of compensating for deficiency in numbers by brilliant and novel strategy." His scheme "looked well on paper, and was cleverly contrived for use on one of those bewildering occasions when a Cabinet of civilian politicians is under the necessity of resolving itself into a council of war." Three columns—Howe's, from New York; Burgoyne's, from Canada; and Colonel St. Leger's, from the Mohawk Valley, were to converge from south, north, and west on Albany, driving the Americans before them; and were thus to occupy the course of the Hudson, and cut off the New England States from the rest of the colonies.

A combined movement on exterior lines before the days of telegraphs had little chance of success without precise and minute directions. "But as a matter of fact, Sir William Howe (whose army was twice as large as the other two columns together) never received any definite orders at all." On the 26th March he did receive a copy of the instructions addressed to General Burgoyne, and was informed that the Secretary of State would communicate with him by next packet. "No such communication ever reached Howe," but on the 18th May "Germaine wrote to him at great length, acquiescing in an expedition to Philadelphia," and incidentally expressing a vague hope that it might be concluded in time to co-operate with Burgoyne. Howe very properly kept Burgoyne informed of his plans and movements from time to time, an action which his ambitious junior did not, apparently reciprocate.

Colonel St. Leger's column was delayed en route to the rendezvous by having to undertake the siege of a fort which blocked the way, and was skillfully dispersed by a ruse of Benedict Arnold, while still many miles from the Hudson. Burgoyne, a political favourite who had never had an independent command before, left Montreal early in June; after overcoming enormous physical difficulties, he succeeded in covering 200 miles, and nearly reached Albany; but his small column was hemmed in by the colonists, who swarmed to arms when its isolated position became known. On the 13th October he surrendered with 5,800 men, "of whom half were Germans"; the Americans had previously captured 1,800 prisoners, including wounded. The news of this disaster only reached London on the 2nd December.

Meantime, while Burgoyne was in vain looking for his assistance, Howe, making use of the command of the sea, as McLellan did 83 years after, had in July put his troops on board transports, had taken them round by sea and up Chesapeake Bay, and had landed them within 30 miles of Philadelphia. He might certainly have reached a point nearer the city, and had a shorter voyage, had he selected the Delaware River as his route. Having landed, he defeated Washington at the battle of Brandywine, and his lieutenant, Wayne, in a night attack at Paoli, and entered Philadelphia on the 26th September. He subsequently very successfully repulsed a night attack made by Washington at Germantown.

Six weeks before the end of the year, however, Sir William Howe, "finding the War Office deaf to his call for reinforcements," wrote home and begged to be relieved. Lord George Germaine "resolved not to let slip the unexpected chance of pro-claiming to the world at large that the general, and not the minister, was to blame." He recalled Howe, and sent out Sir Henry Clinton from England to succeed him. Clinton soon found that Philadelphia was practically a beleaguered

city, and dependent on the Delaware for the transport of food supplies. Washington had fixed his headquarters 22 miles from the city at Valley Forge, far enough away to be secure from surprise, but near enough to take advantage of opportunities; while his flying columns swept the country of supplies.

The expedition to Saratoga had now brought about further unpleasant results, for on the 6th February, 1778, France concluded a treaty of alliance with the United States, and a fleet under d'Estaing was expected off the coast in the early summer.

Clinton determined to evacuate Philadelphia before he was hemmed in by sea; sending his sick and wounded by water, on the 18th June he set off with 17,000 men to march overland to New York, although pursued by Washington, with whom he declined a decisive action (an opportunity for which Howe had sought in vain) at Monmouth Court House, in spite of tropical heat and pestering guerrillas, he was successful in reaching his goal, on the 1st July, with the loss of a few hundred men.

Such is the general outline of the story unfolded. While deep sympathy must be accorded to the British generals who were left to carry out an impossible task, it must be given in an equal degree to Washington, who was hampered by the seal of Congress that, in the course of nineteen months, framed and promulgated four successive army systems; by the dislike of his countrymen to give more than a few weeks' military service and to leave their ordinary occupation; and still more by the intrigues of political generals, who used all their eloquence to secure his removal and that of his prominent officers, and actually went to the length of refusing to his army when at Valley Forge, supplies of food and clothing that were available; yet, in spite of difficulties, he always managed, by unflinching courage and skilful generalship, to keep a formed body of men in the field as a nucleus of resistance.

The volume contains a vast amount of interesting detail gathered from the diaries and writings of combatants on both sides.

Napoleon, a Biographical Study. By Dr. Max Lenz. Translated from the German by F. Whyte. 332 pp., with illustrations and maps. 8vo. London, 1907. Hutchinson. 16/-.

This book is a study, partly personal but mainly political. It gives all the principal events of Napoleon's career from his early days, during the internal struggles in Corsica in 1791-2, to his death at St. Helena. The book is only of military interest in so far as it deals with one of the world's greatest generals, and with the political events which caused, or were caused by, Napoleon's campaigns, for none of the campaigns is dealt with in any but a cursory style, and no strategical or tactical questions are entered into. The political and diplomatic sides of Napoleon's career are more fully dealt with, and much interesting matter is brought out regarding the motives which inspired his diplomatic action at various times.

The author is evidently a sincere admirer of Napoleon, and the book is written in a clear and easy style and appears to have been well translated.

A Study of Field Marshal Count Radetzky's Campaign of 1848 (Studie über den Feldzug des Feld-marschalls Grafen von Radetzky, 1848). Anonymous. 30 pp., with 6 sketch maps. 8vo. Vienna, 1907. Seidel. 2/6.

A short critical study of the 82-year-old field marshal's campaign in Northern Italy which culminated in the battle of Custozza on the 23rd to 25th July, 1848, and the subsequent pursuit to Milan. The publication of this pamphlet is opportune in view of the recent fiftieth anniversary of Count Radetzky's death.

Sadowa. A Study by General H. Bonnal. Translated by Lieutenant C. F. Atkinson, 1st V.B. Royal Fusiliers. 255 pp., with maps. 8vo. London, 1907. Rees. 7/6.

This is a translation of the work published by General Bonnal in 1900, and forms part of the series "L'Esprit de la Guerre Moderne."

To students of the campaign of 1866 it needs no recommendation, since they are probably already acquainted with the French version, but to those who have not yet studied that campaign, or who have not a sufficient knowledge of French to read the original, this translation should be of great value. The translation itself has been very well done, the book is well got up and printed in large type, and the maps, though in some respects not beyond reproach, are good and clear. The account of the campaign is excellent—clear, and easily followed and the comments of the author on the various phases of the operations are instructive. The book is mainly strategical, and gives no description of the minor battles, but presents the general strategical situation every day, supplemented by a separate map showing the situation on the evening of each day, and thus the student is led up to the grand climax of Sadowa. The battle itself is described with great clearness, and is illustrated by six plans. Appendices contain a bibliography of the Sadowa campaign, notes on the series "L'Esprit de la Guerre Moderne," notes on terminology, on the organization of the two armies, and on lengths of columns. Mr. Atkinson has done the army a considerable service by his translation.

The War of 1870-71. Operations in the East. Prepared in the Historical Section of the General Staff. 110 pp., with 2 maps. 8vo. Paris, 1907. Chapelot. 2/8.

This volume describes the operations on the Rhine and in the Vosges from the outbreak of war to the 2nd September.

History of the War of 1870-71. Vol. VI. By Pierre Lehautcourt. 788 pp., with 9 maps. 8vo. Paris, 1907. Berger-Levrault. 7/6.

The 6th volume of this history takes up the story with the retreat after Wörth, on 7th August. It follows the fortunes of MacMahon's Army in the retreat to Châlons, the fight at Beaumont, the move to Sedan; and ends with the capitulation on the 3rd September. The book contains little comment on the strategy and tactics of the campaign; it is simply a full record of the events as they occurred; but it brings out forcibly the disastrous effects produced by the indecision of the Commander, coupled with constant interferences on the part of the Paris authorities.

General Lee: His Campaigns in Virginia, 1861-1865, with personal reminiscences. By Walter H. Taylor, Adjutant-General of the Army of Northern Virginia, C.S.A. 314 pp. 9 maps and plans. 8vo. Norfolk, Virginia, 1906. Nisbaum Book Company. 10/-.

In 1878 Colonel Taylor published his "Four Years with General Lee." The chief interest of that work was statistical, the writer's object being to show that the odds against General Lee were greater than has been generally supposed. The earlier work being out of print, the author was persuaded to publish these memoirs, which were not originally intended for publication. They do not profess to give a critical account of the campaigns in Virginia, but rather aim at enabling the general reader to form a fair idea of each of the great battles fought. Their chief interest will probably be found to consist in the light which they throw upon General Lee's personal character. It cannot be said that they add much to our knowledge of the working of the Staff of the Army of Northern Virginia. The conclusion would seem to be that of all the different departments of an army, an efficient staff is the one least easily improvised. As in his first volume, the author criticises severely the conduct of Longstreet during the Gettysburg campaign, and supports his opinion by quotations from a review of Longstreet's "From Manassas to Appomattox" in the *Journal of the Royal United Service Institution*, October, 1907.

Military Memoirs of a Confederate. By E. P. Alexander, Brigadier-General, C.S.A., and Chief of Artillery, Longstreet's Corps. 620 pp. Map and plans. 8vo. New York, 1907. Scribner. 16/6.

No one could be better qualified to write the story of the Army of Northern Virginia than General Alexander, who accompanied that army from its cradle to its grave. At the outbreak of the war he was a second lieutenant of Engineers, U.S.A. Commissioned a captain of Engineers in the Confederate Army, he was present at the first battle of Bull Run as signal officer on Beauregard's Staff. A few days later he was appointed chief of ordnance of the Army of Northern Virginia. In November, '62, he succeeded Colonel S. D. Lee in command of an artillery battalion, which formed part of Longstreet's reserve artillery. From Gettysburg onwards he was in command of the artillery of Longstreet's Corps. When the Army of Northern Virginia was reorganised after Chancellorsville, the general artillery reserve was broken up, and the artillery was reorganised with a few batteries to each division and a reserve to each corps. It is claimed that this reorganisation was the first of the kind ever adopted, and was subsequently copied by the chief European powers.

The author states his object to be "the criticism of each campaign as one would criticise a game of chess, only to point out the good and the bad plays on each side and the moves which have influenced the result."

The acuteness of his criticism and the impartiality of his judgment render his work of great importance to the military student. The romances, which have too often passed for history, find no place in this narrative. The battle of Seven Pines is depicted as it really took place. It is clearly shown that Longstreet misunderstood Johnston's instructions, but that the latter, feeling himself partly responsible, shielded his lieutenant by representing in his report the battle as if fought according to his original plan, and also induced his second-in-command, G. W. Smith, to change his report. "The whole history of this battle remains a monument of caution against verbal understandings." The author's account of Chancellorsville rejects the legends of Pleasanton and others, and follows Colonel Hamlin's version of Jackson's flank attack.

The description of the first Bull Run is admirably clear and the criticism luminous. McDowell's errors in the conduct of the actual battle consisted in making a succession of partial attacks in the first stage, and in continuing the frontal attack instead of trying to turn the Confederate flank on the Henry House Hill. The Confederate commanders are blamed for not going "in person to supervise and urge forward the execution of the orders, though time was of the very essence."

The causes of Jackson's repeated failure during the Peninsular campaign are carefully examined, and his conduct from beginning to the end of that campaign severely criticised. It is pointed out that he was a day late to begin with, partly because of his passion for Sunday observance, partly because he failed to make up for his loss of time by not demanding better marching from his troops, and by his loss of practically a day "the cream of the whole campaign was lost." Throughout the seven days' battles, his operations were marked by a want of vigour and a lack of initiative, which proved all the more fatal, because to Jackson, fresh from his valley triumphs, were assigned by Lee's generosity the shortest route and the largest force, with the opportunity of winning the most brilliant victory of the war. Lee did not write his report of this campaign till eight months later, when "Jackson's great military genius had manifested itself undimmed by any spell," and deliberately glossed over the failure, which had been so brilliantly stoned for. The author rejects Dabney's explanation, that Jackson's failure was due to physical exhaustion, and apparently inclines to the view that Jackson wished

to spare his own troops, and thought that the garrison of Richmond ought to bear the brunt of the fighting.

His criticism of the Gettysburg campaign leaves nothing to be desired, except, perhaps, that he had been rather less partial to his corps commander. For he accepts Longstreet's defence of his conduct on the 2nd July as if it were in itself and without further proof, an irrefutable answer to the censures which have been passed upon him. He condemns the campaign, as planned, because it ignored the sole military advantage possessed by the Confederates, viz., the interior lines. In his opinion, both Lee's invasions of the North were a mistake, and a large part of his victorious army should have been sent to Tennessee and Kentucky, with a view to forcing the Federal forces of the west back upon the Ohio. He quotes the success gained at Chickamauga by the addition of only five infantry brigades, without any artillery, as an indication of what might have been done earlier in the war with the much larger forces than available. One of the chief causes of the failure of the Gettysburg campaign was Stuart's raid round Hooker's rear. Lee's Gettysburg campaign was compromised, just as Hooker's Chancellorsville campaign had been lost, by the absence of his cavalry. Another cause was the failure of the Confederate staff to keep their commander informed of all that was taking place. Hill's movement upon Gettysburg, on the 1st July, which precipitated the battle, was made without either Lee's sanction or knowledge. Ewell throughout the three days of battle fell far short of his duty. The author considers that Stuart would have proved a much more efficient successor to Jackson. The Federal position on the 2nd and the 3rd July was greatly superior to that of their opponents, and the one weak point in Meade's line, the salient on Cemetery Hill, was never attacked. The Confederate management of the battle of the 2nd was "conspicuously bad." The type of the attack ordered was "the echelon or progressive type, as distinguished from the simultaneous." The latter, in the author's opinion, should be the type for any battle not commenced till the afternoon. He agrees with Longstreet that the attack on the 3rd, as carried out, was doomed to failure, and places the chief responsibility upon Ewell and Hill.

The author holds that each summer campaign in Virginia marked a Confederate crisis, but the crisis of the war took place during the fighting round Petersburg on the 15th to the 18th June, 1864. "At no other period was there such depression among the people at home, in the army in the field, or among the officials of the Government in Washington." Had Grant sustained at Petersburg "a second defeat, more bloody, more signal, and more undeniable than Cold Harbour" (and such would surely have been the case, even if Beauregard had been reinforced only by Longstreet's Corps), he believes that public support at the North would have been withdrawn from Grant, whereas the Federal leader, by outwitting Lee, secured a position from which he was never dislodged.

The lack of good maps is a distinct disadvantage to this book.

Papers of the Military Historical Society of Massachusetts. Vol. VI The Shenandoah Campaigns of 1862 and 1864 and the Appomattox Campaign, 1865. 518 pp. 5 maps. 8vo. Boston, 1907. Cadet Armory, Ferdinand Street. 10/-.

The chief interest of this volume centres round the battles of Cedar Creek and Five Forks. More than a quarter of the whole book is devoted to a critical examination of the dispatches and orders issued on the Federal side during the latter campaign. The writer, Colonel Swan, concludes that the removal of General Warren cannot be justified, and inclines to place the responsibility for that step upon Grant, who, by his oral message to Sheridan on the morning of 1st April, seemed to be calling upon the latter to find an excuse for Warren's removal. Two other papers from the pen of Captain C. H. Porter treat more briefly of the same campaign, and are both written from a point of view favourable to Warren. Both writers appear to fix the blame for the failure of the 5th Corps to do more than it did upon General Crawford, one of its divisional commanders.

An interesting, because an uncommon, view of Sheridan's Valley campaign is put forward by Major Kennon. His conclusion is, that though Sheridan won several victories, yet he made very little use of them beyond ravaging Shenandoah Valley and improving the moral of his troops. "So far as the effect of the Valley operations on the general operations is concerned, Sheridan would have accomplished almost as much had he remained during the entire season behind his entrenchments at Halltown, merely detaining Early's troops in the Valley." He considers that Sheridan, at the battle of the Opequon, chose the very worst course of several that were open to him, and that he ought to have captured the bulk of Early's army instead of merely defeating him. He concedes that the battle of Fisher's Hill "affords one of the finest examples of grand tactics to be found in the history of the war," but considers that the attack was made so late in the day, and the cavalry co-operation was so feeble, that its full fruits were not gathered. If Sheridan, after Fisher's Hill, had complied with Grant's instructions, it is not unlikely, in the writer's opinion, that Richmond would have fallen in the autumn of '64.

Colonel Hamlin, after an investigation pursued for three years, decides that the credit for the recapture of the guns at Cedar Creek belongs to Colonel Bennett, of the 1st Vermont Cavalry, with his regiment and a detachment of the 5th New York Cavalry.

Colonel Livermore contributes a paper on the "Generalship of the Appomattox Campaign." He takes the view that in this campaign Lee showed himself inferior to Grant, and that he held on to Richmond until it was too late to effect his retreat to the Roanoke, not because he was compelled to do so by any political or moral reasons, but because he was still hoping to be able to deal Grant another blow.

The first paper in this volume, dealing very lightly with Jackson's Valley campaign of 1862, might very well have been omitted, as it has already appeared in the first volume of this series.

Petersburg, Chancellorsville, Gettysburg. By various authors, being a collection of papers read before the Military Historical Society of Massachusetts. 410 pp., with 4 maps and index. 8vo. Boston, 1906. Cadet Armory, Ferdinand Street. 10/-.

This is the fifth volume of the papers read before the Military Historical Society of Massachusetts, and, like its predecessors, consists for the most part of the personal recollections of the Civil War of officers who took part in the operations. The greater portion of this volume deals with the fighting about Petersburg in 1864, and is of great interest and historical value, but perhaps the two last papers will have the chief attraction for English readers. These are both by the Rev. James Fowler Smith, who was aide-de-camp to Stonewall Jackson at Chancellorsville, and afterwards to Ewell at the battle of Gettysburg. The author was therefore in a position to hear much that was going on between the higher commanders, and, even if he throws no new light upon the main operations with which he deals, such as Longstreet's conduct at Gettysburg, he had advantages which add considerable value to all he has to say. Throughout the volume such criticism as there is seems to be carefully weighed and to be singularly devoid of the personal bias which might perhaps be expected.

Leading American Soldiers. By R. M. Johnston, M.A., Cantab. 371 pp., with index. Illustrated. 8vo. London, 1907. Constable. 7/6.

Short biographies of United States leaders from the War of Independence to the Civil War.

The Campaign of Santiago de Cuba. By Capt. H. H. Sargent, 2nd Cavalry, U.S.A. 3 volumes, each about 260 pp. 12 maps. 8vo. Chicago and London, 1907. Kegan Paul. 21/-.

Contains a detailed account of the campaign in Cuba up to the fall of Santiago. The work is educational rather than historical, and each chapter concludes with several pages of author's comments which bring out strongly the necessity of preparation for war. The final volume contains a brief essay on the military policy of the United States.

Military History applied to Modern Warfare. A guide to the study of Military History exemplified by studies of the Campaigns of Austerlitz, Jena, Vimiera, Corunna, Salamanca, Waterloo and the Shenandoah Valley. By the late Captain J. W. E. Donaldson. 2nd edition, revised and enlarged by Captain A. F. Becke, late Royal Field Artillery. 395 + xxiv pp., with maps and plans. 8vo. London, 1907. Rees. 8/6.

A new edition of this publication. It contains a completely new set of maps and plans.

Dyott's Diary, 1781-1845. A selection from the Journal of William Dyott, sometime General in the British Army, and A.D.C. to H.M. King George III. Edited by R. W. Jeffery. 2 vols. 386 and 431 pp. 8vo. London, 1907. Constable. 31/6.

General Dyott served in the West Indies at the capture of Grenada, in Egypt in 1801, and in the Walcheren Expedition.

The Life of Robert, first Lord Clive. By the Rev. G. R. Gleig. 366 pp. 8vo. London, 1907. Murray. 2/6.

A cheap edition of this well-known work.

Letters and Papers of Charles, Lord Barham, Admiral of the Red, 1758-1813. Vol. I. Edited by Sir J. K. Laughton, lxxvi + 404 pp. 8vo. London, 1907. Navy Records Society.

This volume contains the correspondence of Lord Barham, who was Comptroller of the Navy from 1778-1790, First Sea Lord 1794-5, and First Lord of the Admiralty 1805-6.

Among the letters are some from Lord Hood, Lord Rodney, Admiral Kempenfelt, and others. They include descriptions of the battles of the 17th April, 1780, and 12th April, 1782, and many details about the condition of the fleet in 1780-1-2. They throw a light on the character of Rodney not altogether to his advantage.

The letters of Admiral Kempenfelt are especially interesting, since he discusses many points regarding the discipline of the Navy, reforms, signalling and the necessity of tactical study, and there seems no doubt that the Navy suffered a great loss when he was drowned in the "Royal George" on the 29th August, 1789.

Reports of the Austro-Hungarian Military Historical Department. Third Series. Vol. V. (Mitteilungen des K. und K. Kriegsarchivs.) Semi-official publication. 332 pp., with four maps. 8vo. Vienna, 1907. Seidel. 9/1.

This volume contains, among others, the following articles:—

The origin of military ballooning and its first employment in the Campaign of 1794: by Captain Peters.

The travels of His Majesty the Emperor Francis I. of Austria in the Campaign of 1809: by Johann Bapt. Skall.

An abridged diary, giving a sketch of events in the Archduke John's army during the Campaign of 1809; communicated by Captain Alois Veltz.

The Schlossberg at Graz, 1809: by Captain Alois Veltz.

Colonel Steigentesch's mission to Königsberg in 1809; by Major Ludwig Eberle.

POLITICAL.

The questions of the present time which influence European Foreign Policy (Les questions actuelles de politique étrangère en Europe). By various French writers. 296 pp. 9 Maps. 8vo. Paris, 1907. Félix Alcan. 2/8.

This is a collection of lectures given at the meetings of the Society of former pupils of the Free School for Political Science. The questions which form the subject of the five lectures are those of the foreign policies of England and Germany, the Austro-Hungarian question, Macedonia and the Balkans, and the Russian problem. The book takes a far shorter time to read than would appear from the number of the pages, and the treatment of the subjects is concise and clear.

Modern Germany. 2nd Edition. By J. Ellis Barker. 552 pp. 8vo. London, 1907. Smith, Elder. 10/6.

This book presents, in exhaustive and comprehensive detail, an account of Germany's political and economic problems, of her foreign and domestic policy, and of her ambitions and causes of success. The writer emphasises his apparent pro-British tendencies by adopting the name of J. Ellis Barker, but his German origin, sufficiently marked by his real name, O. Eltsbacher, under which the 1st edition of the book was presented to the public, is apparent throughout his composition.

There is much interesting matter in the work, particularly that contained in the earlier chapters dealing with the fundamental principles of Germany's foreign policy and her relations with the various European Powers, and the portions of the book dealing with the German Navy League, operations over sea, and the Emperor as a political factor are instructive.

On the whole, the work is well worth study.

Modern Germany: its Evolution (L'Allemagne Moderne, son évolution). By Henri Lichtenberger. 392 pp. 8vo. Paris, 1907. Flammarion. 3/-.

In four books, which trace the evolution of Germany under the following headings: Book I.—Economic Evolution. II.—Political Evolution. III.—Religious, and IV.—Artistic and Literary Evolution.

In a final chapter the writer lays special stress on the important part played by the instinct of discipline in the evolution of the German nation.

Austria-Hungary and Italy. The West Balkan Problem and Italy's struggle for predominance in the Adriatic (Oesterreich-Ungarn und Italien). By L. von Chlumecky. 247 pp. 8vo. Vienna, 1907. Franz Deuticke. 4/6.

The writer warns his countrymen of the danger of remaining passive spectators of Italian policy in Albania.

Austria aims at keeping open the Adriatic as an outlet for Austrian trade, and at preventing any new state from interposing between the Bosnian railhead at Zadarjevo and its projected extension to Salonika. Unfortunately Bulgaria, Serbia, and Greece also look on Salonika as their goal. Montenegro dreams of a revival of the old Serbian dominion from Belgrade to Antivari; Italian and French politicians have suggested an autonomous Macedonia; Russia has lately favoured the Bulgarian claims, and plays off the various aspirants against each other, and against Austria.

Italy's adhesion to the Triple Alliance was instigated by chagrin at the French occupation of Tunis, and has been maintained more for its economic and military advantages than from any feeling of affinity. Signs of discord have multiplied of late. Public support for the Albanian policy was enlisted by an appeal to anti-Austrian sentiment. The Adriatic, an Italian sea, was menaced by the designs of Austria. A vigorous propaganda was started in Albania; Italian schools sprang up; harbour works were started at Antivari, a port expressly forbidden to warships by the Berlin Congress; a railway has been built from Antivari to Vir Basar, and proposals have been made for its extension to the Lower Danube. Subsidised steamship lines connect Antivari with the Italian coast. The result must be to divert Balkan commerce from its present north westerly channel, via Austria, to a south-westerly direction via Italy, towards France. This policy must bring about a conflict; no compromise is possible. Salonika can never be accepted by Austria as a substitute for the Adriatic. Italy must renounce her ambitions in Albania, and, in return, Austria should help her in seeking compensation in Tripoli and in strengthening her position as a Mediterranean power.

The Future of Austria-Hungary and the attitude of the Great Powers. By Scotus Viator. 78 pp. 8vo. London, 1907. Constable. 2/-.

This volume contains a concise and interesting appreciation of some of the many political factors bearing upon the problem of the future of the Dual Monarchy.

The writer first reviews the question of a possible partition of the Empire from the point of view of each of the neighbouring Powers, and endeavours to show that Austria-Hungary is far from being so tempting a prey to her neighbours as is commonly supposed, and that in each case the dangers of annexation would more than outweigh the possible advantages.

He then deals with the question of internal politics, and shows that separation between Austria and Hungary involves consequences only slightly less grave than those of disruption by foreign foes.

It may be mentioned that part of the book consists of reprints of articles by the author which have appeared in the *Spectator* during the last couple of years.

An observer in the Near East. Anonymous. 309 pp., with map, and illustrated by photographs by the author and Princess Xenia of Montenegro. 8vo. London, 1907. Eveleigh Nash. 16/-.

This somewhat startling work claims to reveal the actual state of affairs in the Balkan Peninsula at the present time.

After a long journey through Montenegro, Northern Albania, Dalmatia, Bosnia, Herzegovina, Servia, Bulgaria, Roumania, Turkey, and Macedonia, the author, who states that he has had private audiences with the various kings and princes of the Balkan States and with the Sultan, as well as with almost every member of the various cabinets, and that he has been the guest of brigands in Albania, endeavours to place on record what he terms the actual and serious truth. He anticipates that some of his facts will come as revelations even to Balkan diplomatists. The views expressed are decidedly anti-German, and by no means favourable to Austria.

Summarising his confidential enquiries, the author finds the present position as regards Macedonia a very serious one, and states that Bulgaria has undoubtedly decided to adopt a firm course which must inevitably lead to war "during the present year" (1907). He is a bold man who ventures to prophesy with regard to the Balkans, and this prophecy has not been fulfilled.

The dangers of a European War, arising from questions of Colonial interest. (Pericoli di Guerre Europee, derivanti da questioni coloniali). By Professor Gustavo Coen. 70 pp. 8vo. Rome, 1907. Officina poligrafica Italiana. 8/4.

The keynote of this treatise is the necessity for German colonial expansion, and the author points out how such expansion must clash with the interests of Great Britain. The present political situation in Europe is fully dealt with, and the question of German influence in the Middle and Far East discussed.

The subject is treated under six headings, viz. :—

Armaments and a pacific policy.

Pan-Germanism.

The German Colonies.

The vulnerability of Holland and her colonies.

The rivalry between England and Germany.

Can war be avoided?

Bonaparte in Egypt, and the Egyptians of to-day. By (the late) Haji A. Browne. 399 pp. 8vo. London, 1907. Fisher Unwin. 10/6.

The first part of this book deals with the French Expedition of 1798, and describes the political conditions then obtaining in Egypt. A description is given of the battle of the Pyramids, where Napoleon shattered the power of the Mameluks. The author asserts that the Egyptians were at first not unsympathetic to the French, owing to oppressions they had suffered from the Mameluks, but that the tactless behaviour of the French, and especially of Napoleon, soon caused a violent reaction. This was further increased by Kitchener, when he assumed the reins of government, and it finally culminated in his assassination. The author dates the beginning of the dislike of the English from the time when the English Government stopped the evacuation of Egypt by the French in 1799-1800. He touches but lightly on the history of Egypt from the evacuation by the French to the beginning of the dual control.

The three healthy influences at present at work in Egypt in Haji Browne's opinion are :—

1. The increased acquaintance of the people with European civilisation.
2. Their increased knowledge of the social and political condition of the Mohammedan countries of the world.
3. The development of the Arabic press.

He also enumerates the unhealthy influences at work such as the influence of an anti-Turkish press, the irreligious system of education, the action of certain missionaries, the behaviour of some Englishmen, and the want of respect shown to local and religious prejudices. The Tabah affair and the Denshawî affair also, in the author's opinion, did a great deal of harm, which was increased by the injudicious action of certain people in England in encouraging agitation against Lord Cromer. He sums up the failure of our administration, "that it has failed in two vitally important matters. It has not in any way qualified the people or any class of the people to undertake the government of the country. It has not educated the people or done anything whatever to ensure the permanency of the good that has been done."

Haji Browne concludes with an appreciation of Lord Cromer's work, and states that though he has himself been an open advocate of autonomous government for Egypt, yet he does not think that the people are yet ripe for autonomy.

The book is a very interesting one, and is written in a clear readable style.

NAVAL.

Naval Pocket Book for 1908 (Marine Taschenbuch, 1908). Compiled from official sources. 582 pp. 12mo. Berlin, 1908. Mittler. 4/2.

This book is issued yearly and gives details of naval establishments, organisation, and administration.

From Sail to Steam: Recollections of Naval Life. By Captain A. T. Mahan, U.S.N. (retired). 326 pp. 8vo. London and New York, 1907. Harper, 10/6.

The author of this book is so well known to the naval and military world that any contribution from his pen commands attention. This book contains the recollections of the author, and opening with a short account of his early life, he then passes to a consideration of the naval conditions in the United States before the Civil War, as regards both personnel and ships. The remainder of the book contains accounts of cruises to South-east America and to the Far East, with recollections of the Civil War. It closes with Captain Mahan's experiences as an author.

The book is largely anecdotal, and contains little of purely military interest, though there is a good deal for the naval reader. It is eminently readable.

CAVALRY.

Cavalry in the Russo-Japanese War. By Count G. Wrangel. Translated by Lieutenant J. Montgomery, 3rd Hussars. 90 pp. with map. 8vo. London, 1907. Rees. 2/6.

The author of this book is of opinion that a strong cavalry forms an absolutely necessary fighting force for every modern army, and he supports his view by stating that the Japanese have decided to form eight cavalry divisions, which, however, is an error, for it was eight infantry divisions which they contemplated adding; it was also proposed to add two cavalry brigades, but these have not as yet been formed. He discusses the following questions:—

1. What has been done.
2. What ought to have been done.
3. To what causes are the sins of omission to be attributed?
4. Is sufficient care taken that our (the Austrian) cavalry should carry out their duties better?

He considers the performances of the cavalry from each side in turn. First, as regards the Russians, he adduces various instances to show the failure of the Russians and also demonstrates some of their successes. He is an admirer of General Rennenkampf, and thinks the inactivity of the Russian cavalry on the western side at the battle of Mukden largely due to the absence of that commander. The author does not seem to be aware that Cossacks are not trained to fight on foot, they are essentially horsemen; but the Russian dragoons, who form the bulk of the regular cavalry, do carry a bayonet.

As regards the Japanese, he condemns the system of having so much divisional cavalry, and ascribes the faults of the Japanese cavalry to their weakness. He defends them from various charges which have been made against them.

In his chapter III, the author considers the steps which should be taken in the Austrian cavalry to remedy faults exposed by the experience gained in the Russo-Japanese war.

It is observed that the Austrian spelling of names is adhered to while an English map is provided. This leads to confusion.

Organisation and Training of Cavalry for Modern War. (A lecture delivered before the Military Society of Berlin, March 6th, 1907.) (Organisation und Ausbildung der Kavallerie für den modernen Krieg.) By Lieut.-Gen. v. Bernhardt. 68 pp. 8vo. Berlin, 1907. Mittler. 2/9.

Reviews the evolution of the cavalry arm since 1866; discusses its strategic organisation, its training for war, and its handling in mounted or dismounted action. Concludes with some remarks as to the part allotted to cavalry in the armies of to-day.

ARTILLERY.

Notes on the Field Artillery of the Army Corps (Notes sur l'Artillerie de Campagne du Corps d'Armée). By Capitaine A. Bonnel. 68 pp. 8vo. Paris, 1907. Lavauzelle. 1/0½.

In view of the recent increases in the German field artillery, the reorganisation of the French field artillery is advocated. The author insists on the impossibility of improvising gunners, and considers that the present organisation would be found wanting on the outbreak of war.

Fortress Artillery and its Armoured Protection (Verteidigungsgeschütze und deren Panzerungen). Being Vol. XIII. (b) of the Korzen-Kühn Series "Guns and Small Arms." By Anton Korzen. 93 pp. 10 plates. Vienna, 1908. Seidel. 5/-.

The book is divided into three sections. Section I. discusses the rôles of the different types of fortress artillery. All guns are considered under two main headings, viz.: "distant fire" and "close defence." To the former is assigned the duty of searching the ground in rear of the besieger's lines, while the latter are for use against his siege works or assaulting columns. It is the rôle which a gun is required to fulfil, and the number of degrees training it is required to give it, that determine the type of protective armour most suitable for it. Section II. gives a short account of the various types of armoured protection in existence, including turrets, shields, small port mountings, and cupolas. Section III. gives a detailed list, with plates, of the guns in the Austrian service to which the above principles have been applied.

Armour Attack Tables for use of Officers of the Royal Navy and Royal Garrison Artillery. By Bt.-Major W. E. Edwards, R. A. Third Edition. Woolwich, 1907. R.A. Institution. 3d.

These are useful tables for the officers of the services mentioned, and enable them to find the perforations of guns of from 6-inch to 12-inch calibre at ranges from 1,000 to 12,000 yards against various armours.

Ordnance and Gunnery. By Lieutenant-Colonel Ormond M. Lissak, Lieutenant-Colonel Professor of Ordnance and Science of Gunnery at the Military Academy, West Point, United States of America. 604 pp., with plates and diagrams. 8vo. New York, 1907. Wiley. London, 1907. Chapman and Hall. 25/6.

This book is designed as a text-book for cadets to give them, as the preface says, "a thorough appreciation of the fundamental principles that underlie the construction and effective use of the instruments of war, and such practical knowledge of the matériel of to-day as should be possessed by every army officer."

The book is very comprehensive in its scheme. It deals with ammunition, guns, mountings, armour, range and position finding, interior and exterior ballistics, including the theory of explosives, small arms, machine guns, submarine mines and torpedoes, and submarines.

In the theoretical discussions the notation of the calculus is freely used and requires considerable mathematical knowledge to follow; a working knowledge of chemistry is also in some cases presupposed. The chapter on explosives is worthy of especial notice, as the demonstration therein given has not hitherto been available in English; but here, also, mathematical knowledge is essential.

The practical portion of the book is very clear and full; the discussion of the new 5-inch siege gun equipment and the new 6-inch howitzer equipment are very interesting at the present time.

The whole work is beautifully and clearly printed, and the diagrams and illustrations are excellent.

STRATEGICAL AND TACTICAL.

England in the Seven Years' War: A study in combined Strategy. By Julian S. Corbett. 2 Vols. 476 and 407 pp., with maps and plans. 8vo. London, 1907. Longmans, Green. 21/-.

The author is the well-known lecturer in history to the Royal Naval War College and the two volumes in which he deals with his subject are of especial interest, since we probably see reflected therein the most modern school of naval thought upon the subject of Imperial Strategy and Amphibious Operations.

The Seven Years' War is dealt with for the benefit of those who seek insight into the higher principles of the art of war, and the author contends that no contest—at least for a maritime power—so clearly illustrates the function of the fleet in war. He points out that a study of the history of the wars which gave Great Britain her position to-day reveals the fact that the function of the fleet is threefold: firstly, to support or obstruct diplomatic effort; secondly, to protect or destroy commerce; thirdly, to further or hinder military operations ashore.

That the destruction of the enemy's fleet is the best way of ensuring that your fleet will be in a position to discharge its three-fold duties is admitted, but that command of the sea is only a means to an end, the author says, is apt to be overlooked, since of late years the world has become so impressed with the efficacy of sea power that there is an inclination to forget how impotent it is of itself to decide a war against great continental States, and how tedious is the pressure of naval action, unless it be nicely co-ordinated with military and diplomatic pressure. It is for these reasons that the author attaches so much importance to a study of the Seven Years' War. From first to last we were more or less free to use our fleet directly upon the ulterior objects of the war, and throughout the struggle, what is called the primary function, that is the domination of the enemy's main fleet, scarcely ever rose above the level of containing operations. From the time, however, when Pitt obtained control and assumed direction of the war he exercised almost undisturbed control of army, navy, and diplomacy; in his hands, we see the fleet slipping

neatly into its place shoulder to shoulder with its comrades; it is never used without some close relation to a military or diplomatic end, and conversely the army and diplomacy are always being employed to secure some point which will either strengthen the naval position or relieve the fleet of some irksome pre-occupation. Here lay the pith of what Pitt called his system.

For Pitt army and navy were the blade and hilt of one weapon, and the war under his direction is described as a most brilliant lesson of the way in which the weak army of a strong naval power can be used, of how continental armies may be made to feel the shock of fleets, and of how superiority at sea, combined with expeditionary action, may be made to thwart continental cabinets, to tangle their strategy, and upset their moral balance.

These volumes should prove of interest to all military students. The state of Europe between 1754 and 1763 is dealt with comprehensively enough to show clearly the aims of the several continental rulers, and how each belligerent, both before and during the progress of the struggle, strove to turn the varying aims and ambitions of continental policy to account. The author gives, as it were, a bird's eye view of the war, in which each naval and military operation is given its relative position in the general scheme, which, so far as Pitt was concerned, was based on the co-ordinated activity of the navy, army and diplomacy, and consequently on what the author regards as the true application of sea power for a maritime nation.

Pitt's system of undivided control has been exercised in much the same way by Napoleon, the German Emperor and the Emperor of Japan, but it should be remembered how entirely the conditions of military service in Europe have changed since the period under consideration, for at that period the size of European armies was determined by the length of the national purse, and England, being as well or better off, in this respect, than any other nation, could put as large an army in the field as most Continental nations. Thus some of the author's arguments are not applicable to modern conditions.

Reflections on the War in Manchuria (Réflexions sur la guerre de Mandchourie). By Lt.-Col. Georges Guionie. 116 pp. 9 Illustrations. 8vo. Paris, 1907. Lavauzelle. 2/1.

Fresh information, throwing new light on this war, is the author's apology for adding to the already large quantity of ink which has been spilt on the subject.

In studying the phases of the principal battles, the author deals particularly with the infantry combat, the invincible power of the offensive, the use of ground, fire discipline, ammunition supply, the use of machine guns, the transmission of orders, and the increasing importance of the rôle of the company officer.

Some observations on the Russo-Japanese War (Quelques observations sur la guerre russo-japonaise). By Lt. Marès, 17th rgt. infantry. 46 pp. 8vo. Paris, 1907. Lavauzelle. 2/1.

The political and strategic situation at the beginning of the war, and the Japanese plan of campaign, are discussed in the first two chapters.

The author then deals on general lines with infantry tactics and night operations, and concludes with some observations on the cavalry and artillery on both sides.

Short Strategical Study of the War of 1870-71 (Kurzer strategischer Überblick über den Krieg, 1870-71). By Lieutenant Von Moser, teacher at the Prussian Staff College. 4th edition. 48 pp. One map. 8vo. Berlin, 1908. Mittler. 2/3.

After rapidly reviewing the events of the war, the writer in the last chapter enumerates the lessons he considers should be drawn from it, namely:—That all the chief points of the strategy of Frederick the Great and Napoleon were adhered to by the Germans, such as thorough preparation for war, a brilliant opening of the campaign, tenacious pursuit of simple objectives, a constant effort to concentrate superior forces and then to bring about a decisive battle, a good appreciation of the enemy's moral and material strength, and the conversion of the enemy's defeat into a disaster.

He concludes by emphasising the necessity for the thorough training of all wars as the latter were on those of Frederick the Great in freeing armies in the field from the cramping influence of magazines, and in showing the effect of large masses of troops in the field of battle.

He concludes by emphasising the necessity for the thorough training of all officers by comparing the way in which Frederick and Napoleon commanded their armies themselves, while German success in 1870-71 was largely due to a combination of decisions made on various occasions by subordinate commanders.

Moltke's Strategy in 1870 (La Stratégie de Moltke en 1870). By Colonel Palat. 392 pp., with 22 maps. 8vo. Paris, 1907. Berger-Levrault. 8/4.

This work is mainly based on Moltke's correspondence. Although every part of the 1870-71 campaign is gone into, there is no description of the events recorded; lations. As the author points out, the study of certain sources of information which have been published only recently tends to show that however highly Moltke may be regarded as a chief of the staff, he is not the master of strategy that he was these being regarded from the point of view of Moltke's previous designs and cal- supposed to be.

History of Fortress Warfare from 1885-1905, including the Siege of Port Arthur (Geschichte des Festungskrieges von 1885-1905 einschliesslich der Belagerung von Port Arthur). By Lieutenant-General H. V. Müller. 260 pp. 1 plan and 29 sketches in text. 8vo. Berlin, 1907. Mittler. 7/6.

The introduction of high explosive shell and of defensive armour for guns effected a revolution in fortress construction. The years 1885-1890 were a transitional period. Since then the chief influences at work have been the invention of smokeless powder, increased rate of fire from guns, and high angle fire of howitzers, and further development of armoured turrets and cupolas. Examples are drawn from the principal European fortresses; the book closes with a study of the defence system and siege of Port Arthur.

Tactical Handbook for Infantry Officers (Taktisches Handbuch des Infanterie-Offiziers). By Major von Hoppenstedt. 298 pp. 5 maps. 8vo. Berlin, 1908. Mittler. 5/-.

The book consists of nine chapters.

Chapter I. deals with generalities regarding infantry attacks, such as attack formations, frontal and flank attacks, protection of flanks, attack of fortified positions, night attacks, infantry attacking in co-operation with, or against, artillery, machine guns, cavalry, etc., etc.

Chapter II. deals with fire effect, touching on the importance of gaining superiority of fire in an attack, the necessity for careful musketry training, the relative powers of French and German infantry weapons, influence of formation of ground on accuracy of fire, etc., etc.

Chapter III. (the Battalion) describes the duties of Battalion Commanders and deals with orders, deployments, closing, objectives, etc.

Chapter IV. (the Company) deals with Company training, the Company Commander, fire discipline, etc.

Chapter V. (the Section) treats of similar details as to the Section.

Chapter VI. deals with the training of N.C.O.'s and men, from the winter training period until the inspection of recruits.

Chapter VII. with the tactical education of officers by means of staff rides, winter schemes, war games, etc.

Chapter VIII. with the method of conducting exercises on the ground.

Chapter IX. gives examples of schemes, and their solutions, for a Battalion, a Company, and a Section.

The Infantry Drill Regulations of the 29th May, 1906, historically illustrated (Das Exerzier-Reglement für die Infanterie vom 29. Mai 1906 kriegsgeschichtlich erläutert). By Lieutenant-Colonel Freiherr von Freytag-Loringhoven, Chief of the Historical Section of the General Staff. 257 pp. 51 sketches in the text and one map. 8vo. Berlin, 1907. Mittler. 5/-.

This book traces the development of modern infantry tactics, with examples drawn from recent wars. The various phases of the combat discussed include: the offensive: battles of encounter; enveloping attacks; pursuits and retreats; wood-fighting, and the attack and defence of localities.

Infantry in the Attack. By Brigadier-General H. R. Kelham, C.B. (A lecture delivered before the East and West of Scotland Tactical Society.) 8 pp. Folio. 1907.

This is an interesting lecture, and gives an example of the writer's own experience of an infantry attack at Witteput. There is a note on Suvoroff.

A to O of the Military Synopsis. Lectures delivered to the Undergraduate Students of Cambridge University. By Lieutenant-Colonel F. H. Dyke. 69 pp. 8vo. London, 1907. Harrison. 2/-.

A small handbook on strategy.

INTELLIGENCE AND SCOUTING.

Patrolling through Beauce (En Patrouille à travers la Beauce.) By Captain C. Oré. 59 pp., with sketches. 8vo. Paris, 1907. Lavauzelle. 1/-.

This work gives examples of cavalry patrol work during the war of 1870 to illustrate the principles of reconnaissance. The examples are very short and to the point. The usual formations of European armies are given, and an appendix contains some notes on making sketches of the ground.

Scouting, and the Training of Scouts in Peace. By Lieutenant H. J. N. Davis, the Connaught Rangers. 24 pp. 8vo. Dublin, 1907. Dollard. 6d.

A lecture delivered before the Military Society of Ireland.

Practical instruction in Security and Information of Non-commissioned Officers of Infantry. By Lieutenant E. K. Massee, 7th United States Infantry. 117 pp., with plans. 12mo. Kansas City, 1907. Franklin Hudson Publishing Company. 2/6.

This is a useful little book for the purpose for which it is intended, but all the more important matter is contained in our own official books.

INSTRUCTIONAL.

Staff Officers' Field Service Vade-Mecum (French). New edition. (*Vade-Mecum de l'officier d'état-major en Campagne*). 478 pages, illustrated. 8vo. Paris, 1907. Lavauzelle. 3/4.

A concise and well-arranged book on similar lines to our own Pocket Book, but not official.

Handbook for Infantry one year Volunteers and for Officers of the Reserve (*Der Infanterie-einjährige und Offizier des Beurlaubtenstandes*). By Major Max Manzel. 338 pp., with plates and tables. 8vo. Berlin, 1908. Eisenschmidt. 3/-.

Contains detailed instructions for soldiers, of the categories referred to in the title, as to their duties and liabilities and the forms to be observed under various circumstances; the successive stages that they must pass through from the time of entering to leaving the army; and aids to the passing of the practical and written tests required of them.

Instructions of the 8th June, 1906, on Field Fortification (*Instruction de 8 Juin, 1906, sur les travaux de fortification de campagne*). Translated from the German by Captain Maurice Meyer. 106 pp., with 106 plates. 8vo. Paris, 1907. Lavauzelle. 1/8.

These instructions provisionally supersede those of 6th April, 1893.

Recognition of the importance of field fortification is shown by the increased number of portable tools and transport given to the German infantry. The German and French instructions on this subject are compared.

The Signaller's Pocket Book of Practical Hints and Notes on Army Signalling. By G. W. Browne, 20th Hussars. 32 pp. 12mo. Aldershot, 1907. Gale and Polden. 6d.

A useful little book for signallers.

AERIAL NAVIGATION.

Navigating the Air. A scientific statement of the progress of aeronautical science up to the present time. By the Aero Club of America. 259 pp., with photographs and diagrams. 8vo. London, 1907. Heinemann. 6/-.

This book opens with a general review of the progress made in aerial navigation, and it then has a succession of chapters which go more into detail and touch on such points as dirigible airships, aeroplanes, balloons, propulsion by motors, air currents, etc., and gives accounts of experiments made by various aeronauts.

An interesting statement is made on page 173, that from a balloon the bottoms of lakes are clearly visible, "a fact that makes airships the natural enemies of submarine vessels"; but the question arises whether this visibility would still obtain when over the sea, unless the sea was perfectly calm.

Many other points of interest to aeronauts are touched upon, and, having been compiled by people with practical experience of aeronautics in all forms, they would seem likely to be of value.

Among the contributors are the Brothers Wright, Dr. Bell, Lieutenant Lahm, Mr. Chanute, etc.

The Technique of the Balloon (*La technique du ballon*). By Lieutenant-Colonel Espitallier. 458 + xvi. pp. 8vo. Paris, 1907. Doin. 4/2.

A very useful book, going thoroughly into the theory of balloons, their management when free, methods of preserving equilibrium, cutting of material for different forms of balloons, and construction of nets, valves, etc. A short chapter on the manufacture of hydrogen finishes a book which should be a standard work for balloon builders and aeronauts.

MEDICAL.

The European in the Tropics (L'Européen sous les tropiques.) By Dr. Adolphe Bonain (Colonial Army). 296 pp. 23 photographs and 28 sketches. 8vo. Paris, 1907. Lavauzelle. 4/2.

The author has had great experience in the treatment of tropical diseases, and treats this subject in a clear, practical, and popular style, thus bringing it within the reach of most of the rank and file of the army.

Proceedings of the First International Conference on the Sleeping Sickness. (Parliamentary Paper.) 61 pp. Folio. London, 1907. Stationery Office. 6d.

This contains a full report in French and English of the proceedings of the above-named Conference.

Report on the Origin and Prevalence of Typhoid Fever in the District of Columbia. By M. J. Rosenau, L. L. Lumsden, and Joseph H. Kasite. Bulletin No. 35 of the Hygienic Laboratory; Public Health and Marine Hospital Service of the United States. 361 pp. (9 maps. 7 charts, 6 figures.) 8vo. Washington, 1907. Government Printing Office.

The prevalence of enteric fever in Washington has long been a matter of concern to the inhabitants. The water supply consisted of undeter water from the Potomac, until filtering beds had been constructed by the Engineering Corps of the United States Army in 1905. This was succeeded by a great diminution in enteric fever, but a sudden increase occurred again in July, 1906, and led to the authorities of the Public Health and Marine Hospital Service being united to co-operate with the Health Officer in investigating the matter.

The report now published is an account of the investigations thus made, together with the conclusions and recommendations resulting from them.

Eight hundred and sixty-six cases of enteric fever were studied between the 1st June and the 1st November, 1906; but 129 were found to have been imported from other districts. Ten per cent. were traced to milk infection, 6 per cent. to personal contagion, but the remaining 69 per cent., exclusive of those coming from other districts, were not traced to any definite cause. The coloured population suffered in proportion more than the white.

The report is a valuable addition to our knowledge regarding the sources and causes of enteric fever, and still further emphasises the extreme complexity of the subject. There was nothing in the chemical and bacteriological analysis of the water from the filter beds to show that they were not acting perfectly.

Reminiscences in the Life of Surgeon-Major George H. Hutton. 224 pp. 8vo. 1907. W. E. Lewis. 5/-.

Surgeon-Major Hutton entered the Army Medical Department in 1854, and became medical officer of the Rifle Brigade. He retired in 1874, and from 1880 until last year kept himself actively employed in the organisation and instruction of the St. John Ambulance Association and the St. John Ambulance Brigade, of which he was honorary organising commissioner. His reminiscences cover an interesting period of army medical history, and of recent developments in the organisation of voluntary aid, as well as of several historical events, such as Sir G. Grey's administration of South Africa in the fifties, the Trent Expedition, and the American Civil War. About half the book is taken up with appendices of speeches, letters and reprints.

Report of Military Observers attached to the Armies in Manchuria during the Russo-Japanese War. Part IV. By Major C. Lynch, Med. Dept. General Staff. 486 pp. One map in pocket, 79 photographs and several plans. 8vo. Washington, 1907. Government Printing Office.

This is a volume of medical and sanitary reports on the war, submitted officially by the author to the U.S.A. War Department. Major Lynch joined the 2nd Japanese Army in February, 1905, just before the battle of Mukden, and remained with it until September, 1905. During the battle of Mukden he was attached to the 8th Division.

The volume is in many respects similar to the volume published by the French Military Medical Attaché, Dr. Matignon, who was associated with Major Lynch during the period of his stay with the 2nd Army. It is a very complete report, well written, and provides an abundance of useful facts connected with the Japanese medical organisation, sanitation, hospital establishments, evacuation of sick and wounded and statistics. Translations of general regulations bearing upon these subjects are included. Many of the photographs are large, full-page reproductions.

Medical Lessons of the Russo-Japanese War (Enseignements médicaux de la guerre Russo-Japonaise). By Dr. J. J. Matignon. 448 pp. Numerous maps, plans, sketches and reproductions of photographs. 8vo. Paris, 1907. Maloine. 9/6.

Dr. Matignon was attached to the 2nd Japanese Army from February, 1905, until the time of the peace negotiation. Both before joining and after leaving the Army, he was given opportunities of seeing the Japanese Army Medical Organisation in Japan and on the lines of communication in Manchuria. He was attached to the 5th Division during the battle of Mukden.

The present volume is a collection of articles, founded upon observations made by him during these periods. Some of them have already been published in communication to the French Academy of Medicine, in *Le Caducée* and other journals.

The facts are very complete, and, as a rule, accurate. They are well arranged in four parts, the first dealing with the general considerations of the campaign, the second with the medical service at the front, the third with the medical service on the lines of communication, and the fourth with the medical service in the home territory. Throughout the various chapters, translations are introduced of the more important regulations bearing upon the work of the hospitals, and on sanitation.

The photographs are excellent, and most of them are interesting.

The volume is dedicated to the Japanese Army, as the bravest, most disciplined, most democratic and most patriotic of modern armies.

MISCELLANEOUS.

The Government and the Army. By The Right Hon. H. O. Arnold-Forster, M.P. 56 pp. 8vo. London, 1907. McCorquodale. 6d.

This book is a reprint of the letters of the author which appeared in the *Standard* during and after the passage of the Territorial and Reserve Forces Bill.

Over-sea Britain. A descriptive record of the geography, the historical, ethnological and political development, and the economic resources of the Empire. By E. F. Knight. xii.+324 pp. 9 coloured maps, specially prepared for this volume, include rainfall, temperature, and vegetation. 8vo. London, 1907. John Murray. 6/-.

The present volume deals with the Nearer Empire, in which term are included the Mediterranean, British Africa, and British America. The author, who is the well known traveller and war correspondent, gives a comprehensive account of the British Possessions beyond the seas, and explains what the British Empire is; how it came to be; the history of its growth; the physical, political, and commercial geography of its various parts. The eager scramble for African Colonies within the last few years, of which other European Powers have secured their share, is well discussed, and the present volume is thoroughly interesting throughout.

Military Report on Somaliland. Vol. I. Geographical, descriptive and historical. General Staff. 273 pp., with maps and illustrations. 8vo. London, 1907. Stationery Office. 2/-.

This volume deals with geography, communications, riding and transport animals, climate, trade, inhabitants, history, administration, finance, money, weights and measures, fortifications and barracks, navy, and native warfare. In Appendices are notes on the genealogy of the tribes, fauna, flora, water supply, horse sickness, kit, etc., etc.

The Officer; Higher Commanders and their Assistants in Germany (L'Officier, le haut commandement, et ses aides en Allemagne). By Jules Poirier. 240 pp. 8vo. Paris, 1907. Librairie mondiale. 2/6.

The contents of this book are as follows:—

Part I., Chapter 1.—Education of the young officer.

Chapter 2.—The Officer—

(i) Officers of Active List (ranks, promotion, pay, pensions, etc.).

(ii) The Medical Service (ranks, promotion, pay, pensions, etc.).

(iii) Reserve of Officers (ranks, promotion, pay, pensions, etc.).

Chapter 3.—Instruction of Officers—

(i) General instruction.

(ii) Technical instruction.

Chapter 4.—Discipline and Funds.

Part II., Chapter 1.—The Higher Commands.

Chapter 2.—Their Assistants—

(i) The Staff (its education and organisation).

(ii) The Adjutantendienst.

(iii) The Corps of Feldjäger.

The Royal and Imperial General Staff and its Chief (Der k. und k. Generalstab und sein Chef im Spiegel der Geschichte). By K. F. Kurz. 94 pp. 8vo. Vienna, 1907. 2/-.

A short history of the development of the Austrian General Staff, with the various changes in organisation and uniform, from its earliest formation during the Thirty Years' War up to the present day. It is interesting to note that the first Chief of the Staff, Major-General Count Lacy, appointed by the Empress Maria Theresa in 1758, was of Irish descent. This officer had originally been in the Russian service.

The regulation at present in force, by which officers of the General Staff are periodically attached for regimental duty, dates from the year 1871, and was copied from the Prussian system. Previous to that year an officer was permanently appointed to the General Staff.

The Italian Army and the conditions of its organization (L'esercito Italiano e le sue condizioni organiche). By Carlo L. M. Valeri. 121 pp. 8vo. Turin, 1907. Società Tipografico-Editrice nazionale. 2/6.

The writer devotes his preliminary chapter to showing that the possibilities of a war, in which Italy may become involved, are not so remote as is generally supposed. He points out that the masses regard the army as a luxury, and that the only matters in which they show interest are the length of compulsory service, and the budget. He calls attention to the shortcomings of the present system, laying special stress on the small percentage of troops which can be mobilised to form the first line, in comparison with the population.

He then discusses the various reforms which have been suggested, and concludes by detailing his proposals for remedying the present unsatisfactory system.

An honest attempt is made in this work to stir up interest in the vital question of military efficiency amongst a population which is indifferent to, and ignorant of the requirements of its land forces.

Hand-grenades, and their utilization in the War in Manchuria (Les grenades à main). By Captain M. C. Cury (French Artillery). 26 pp. 12 figures. 8vo. Paris, 1907. Berger-Levrault. 9½d.

After a short historical introduction, the author gives description and drawings of some of the hand-grenades used by the Russians and Japanese.

Captain Cury states:—"This antique engine of war has been nearly completely abandoned by European armies, except, perhaps, by the British." His authority for this is the *Armeeblatt*, No. 37, of 1906, which he quotes to the following effect:—

"The English made great use of hand-grenades in the Sudan; the grenades were formed of segments and contained a burning charge of gun-cotton. . . . The grenades were exploded by a time fuse. They weighed between 4 and 6 lbs., and could be thrown a hundred yards by hand, or two hundred yards by a catapult."

The Neutrality Incidents of the Russo-Japanese War (Les incidents de neutralité de la guerre russo-japonaise, 1904). By Lieutenant Henri Carré, 131st regt. Infantry. 110 pp. 8vo. Paris, 1907. Lavauzelle. 2/1.

This work contains solutions of the various problems of international law set during the first year of the Russo-Japanese War.

The rights of belligerents are clearly defined. The author admits that force must always remain the *ultima ratio*.

Some Lessons from the sad experiences of the Russo-Japanese War (Quelques leçons de la triste expérience de la guerre russo-japonaise). By General Martynov (Russian General Staff). 122 pages. 8vo. Paris, 1907. Lavauzelle. 1/8.

The necessary reorganisation of the Russian Army can never be effected by the present War Department; it must be initiated and carried through by the people's representatives in the Duma, backed by public opinion.

The effect of the naval campaign on the war, and the failure of the Russian strategy and tactics, are dealt with in the first half of this book. After that, incidents in the war are only referred to in order to emphasise the writer's arguments.

He shows the defects of the Russian system throughout, dealing successively with the high commanders, the officers, and the men. The necessity for offensive tactics is recognised in the Russian Army in theory, but the system of training makes their practice in war impossible.

The system of instruction at the Staff College spoils the good material received by that institution. Promotion by seniority, and indiscriminate giving of decorations and rewards, gives no opportunity for those of exceptional capacity to rise and take their right place.

The moral and characteristics of the Russian and Japanese soldier are contrasted.

Treaties, Conventions, Agreements, Protocols, and other Documents relative to Africa, 1825-1906 (Trattati, Convenzioni, Accordi, Protocolli ed altri Documenti, relativi all'Africa, 1825-1906). Official—Italian Foreign Office. Three Vols. 8vo. Rome, 1906. Tipografia del Ministero degli Affari Esteri. 30/-.

Vol. I., 797 pages.—Text of treaties, conventions, etc.

Vol. II., pages 800-1280.—Appendices.

Vol. III., 237 pages.—Index.

This index is divided into three parts:—

(a) Chronological.

(b) Analytical, the contracting countries being given in alphabetical order.

(c) The subject matter of the various treaties, conventions, etc., alphabetically arranged.

At the end of Vol. III. are two maps; the first, dated 1906, showing European Possessions and Protectorates in Africa; the second, giving the N.E. angle of Africa from Suakin to the mouth of the river Guba and including a portion of the Sudan, Eritrea, Ethiopia, Somaliland, and Uganda. It is dated 1906, and compiled by the Military Geographical Institute of Italy.

A German Mission to Abyssinia (Eine Deutsche Gesandtschaft in Abyssinien). By Felix Rosen. 496 pp. Illustrated. 8vo. Leipzig, 1907. Veit. 12/-.

Describes the author's experiences as a member of the German mission, sent to King Menelek in 1905. The party proceeded from Jibouti *via* Debe Dawa to the capital. For the return journey, the route taken was by Debra Markos, Gondar to Massowah. The photographs give an excellent idea of the country passed through.

How do we make our Colonies productive? (Wie machen wir unsere Kolonien rentabel). By Dr. P. Rohrbach. 279 pp. 8vo. Halle, 1907. Gebauer Schwetsche Drücherei. 3/-.

Discusses the local conditions in the various German colonies in Africa, their productiveness, and administrative problems. Suggests the best line for their future development and the policy to be followed towards natives and emigrants.

In the footsteps of Marco Polo. By Major C. D. Bruce, late commanding the Chinese Regiment of Infantry. 379 pp. 40 illustrations and map. 8vo. London, 1907. Wm. Blackwood. 21/-.

This is an account of a journey overland from Simla to Peking, taken by the author in 1905-6, in company with Captain W. T. Layard, Northampton Regiment. In the final chapter, Major Bruce gives an interesting résumé of the past history of Chinese arms, and concludes with his reasons for doubting the renaissance of a military spirit in China.

A detailed record of temperature and weather experienced *en route*, and an index, complete the volume.

New Self-loading Pistols (Neuere Selbstladepistolen). By Colonel E. Hartmann. 30 pp. Illustrated. 8vo. Berlin, 1907. Mittler. 1/-.

This book gives a description of three standard patterns of automatic pistol, with plates showing the various portions of their mechanism.

Travelling Field Kitchens (Les Cuisines Roulantes). By Commandant Painvin. 353 pp. Illustrated. 8vo. Paris, 1907. Lavauzelle. 74d.

This little book, a reprint of some articles which appeared in the *Revue de l'Infanterie*, gives a short account of the various types of field-kitchen on wheels adopted in the European armies. Illustrations are given of those used in Russia and Japan during the recent war, and of the Austrian vehicles.

Railway enterprise in China. An account of its origin and development. By Percy Horace Kent. 304 pp. 5 maps. 8vo. London, 1907. Arnold. 12/6.

The author, who, as a resident in China, appears to have been exceptionally well situated for obtaining reliable material for the compilation of the present volume, has supplied a long-felt want, *i.e.*, an up-to-date and accurate record of the origin and growth of railway enterprise in China.

The Appendices contain copies of the more important railway contracts and other documents, which greatly enhance the value of the work as a book of reference. There is also a general map illustrating railways in China and Manchuria, showing the lines constructed, under construction, and projected.

A good index completes this excellent publication.

The Railways of Africa: Considerations that should affect our Railway Policy in our African Colonies (Die Eisenbahnen Afrika's, Grundlagen und Gesichtspunkte für eine kolonial Eisenbahnpolitik in Afrika). By von Posadowsky. 262 pp., with map. 4to. Berlin, 1907. Official publication.

This book is a memoir drawn up for the Reichstag. Part I. is a survey of all the existing railway systems in Africa with statistical information as to cost of construction, capacity, and remunerativeness of the lines. Part II. deals with railway policy in Africa in its relation to German colonial and foreign policy. The book is valuable as a work of reference.

PART II.

MAGAZINE ARTICLES.

(For abbreviations see page 171.)

AERIAL NAVIGATION.

Recent Progress in Aerial Navigation. By Commandant E. Manceau R.M.S., October. (To be continued.)

The Employment of Motor Balloons. By Lieut. Karl Lill von Lilienbach. O.M.Z., November.

The Conquest of the Air (the Lebaudy and Patrie Balloons). R. d'A. August.

ARTILLERY.

The Covered Position for Field Artillery (continued). M.A.G., July.

Guns with Forward Movement when Fired. M.A.G., August.

The R.G.A. and the Rifle. By "G." U.S.M., October.

New Sighting Arrangements for Field Howitzers. By Capt. Roskoten, with 6 illustrations (in French). I.R., Suppl. 103, October.

Some new details of the French Field Guns. I.R., Suppl. 103, October.

The Tactical Principles of Field Artillery. V.T.H., Vol. 4, 1907.

Employment of Heavy Artillery in Field Operations. Two articles by Major K. K. Knapp, R.G.A., and Capt. O. L. Price, R.G.A. P.R.A.I., October.

The Properties of the Modern Q.F. Field Gun, affecting the preparation and carrying out of Fire. Translated from M. Art. P.R.A.I., October.

Guns v. Balloons. By Capt. C. Gregory, 19th Lancers. Translated from R.M.S. P.U.S.I., October.

Application of the Theory of Probabilities to Gunnery Instruction. By Lieut.-Gen. v. Rhone. A.M.B., October.

The 7.5 cm. Ehrhardt Gun, with adjustable length of recoil, for use in landing operations, and as a Mountain Gun. By Major-Gen. Richter. A.M.B., October.

Fresh details of the French Field Gun. A.M.B., October.

Heating and Expansion of the Buffer Fluid in Q.F. Guns. By Major-Gen. D. Bahn. A.M.B., October.

Recent Developments in Naval Artillery. By Colonel D. W. v. Scheve. A.M.B., October.

Artillery Material. M. Art., October.

The Modus Operandi of Coast Artillery Fire. M. Art., October.

Some Lessons in Artillery Tactics from the Russo-Japanese War. R.M.B., Part I., 1907-8.

The Sphere of Siege Howitzer Divisions. O.M.Z., July.

Mechanical Traction for Siege Artillery Brigades. By Capt. W. Lang. O.M.Z., September.

The Construction of Heavy Ordnance. By Lieut.-Col. Birnie, Ordnance Department, U.S. Army. J.M.S.I., November and December.

Concealed Positions for Field Artillery. K.T.Z., Vol. 9. 1907.

The latest Developments of Armour Plates and Armour-Piercing Shell. By Capt. M. Kralupper (continued. To be continued). M.A.G., November.

Some Comparisons between French and English Artillery. Address by M. Gustave Canet, President of the Junior Institution of Engineers. E., 22nd November.

The Training of Field Artillery. By Capt. P. Rath, General Staff. M.A.G., October.

Ballistic Apparatus. Calculations for Range Tables. Prepared by the Austrian Technical Military Committee. M.A.G., October.

The Artillery under the Provisions of the Territorial and Reserve Forces Bill, 1907. By Col. H. C. C. D. Simpson, C.M.G., P.R.A.I., November.

On the Method of Carrying out Practice in a Service Company of R.G.A. By Major C. P. Martel, R.G.A. P.R.A.I. November.

A Makeshift Method of Entraining Field Artillery. By Q.M.S. Instructor in Gunnery T. Brady. P.R.A.I., November.

Notes on the Tactical Employment of Artillery in enclosed and wooded country. By Major H. C. Williams-Wynn, R.F.A. P.R.A.I., November.

The New German Field Artillery Training. R.M.E., August and September.

The Russian and Japanese Artilleries in the first period of the War of 1904-5. Wa-fang-Kou, Ta-shih-chiao, Eastern Detachment. By A. Bibikov. A.J., May to July.

Questions of Artillery Tactics, with Examples drawn from the Russo-Japanese War. J.S.M., September and October.

Field Firing by Artillery. By Col. G. Lang. R.A.G., October.

Modern French Field Guns, with Diagrams and Plates. E., 6th December.

BRIDGING.

Bridging by Night with Unprepared Material at Strasbourg. Transcript from K.T.Z. R.E.J., November.

Single-Pier Suspension Bridge. By Major R. L. McClintock, D.S.O. R.E.J., November.

CAVALRY.

Instruction in the use of the Cavalry Sword. R.C., Vol. 45, p. 311.

Fighting on Foot and Musketry for Cavalry. R.C., Vol. 45, pp. 513, 682.

The Native Cavalry of India. By Lieut.-Col. W. W. Norman, 22nd Cavalry (Frontier Force). C.J., October.

What Lessons regarding the employment of Cavalry are to be learnt from the War in Manchuria. I. By Col. Prince G. of Leuchtenberg. II. By Col. E. von Froreich-Szabo. K.M., August and September.

The Equipment of Cavalry with Machine Guns. K.M., July.

The Work of the Russian Cavalry and Cossacks in the Russo-Japanese War. K.M., July.

The Training in Equitation of the Russian Cavalry Officer. K.M., July.

Squadron Training in Germany and Austria. K.M., July.

Considerations regarding the Rôle of the Cavalry during the Fight. By Capt. Count Schwerin. K.M., August and September.

Pack or Wheel Transport for Machine Guns. By Capt. H. Viktoriw. K.M., August and September.

The Employment of Machine Guns in conjunction with Cavalry. By Major-Gen. M. von Czerlien. K.M., August and September.

The Wurttemberg Cavalry Brigade Normann in the Campaign of 1813. M.W.B., Beiheft 10, 1907.

The Importance of Dismounted Action for Cavalry (in French). I.R., Suppl. 103, October.

Two Cavalry Questions: I. Divisional Cavalry; II. Mounted or Dismounted Action. By Captain G. Count Wrangel. K.M., August and September.

The Scottish Mounted Manœuvres, 1907. C.J., October.

The increased importance of Training our Cavalry in Mobility. By Major H. Clifton-Brown, 12th Lancers. C.J., October.

The Cavalry of the Grand Army in 1805. By Capt. G. M. Orr, 11th Lancers. P.U.S.I., October.

The Screening Duties of Cavalry. By Major-Gen. Freiherr von Fritsch. K.M., November.

Questions of Cavalry Training. Training in Dismounted Action. By a Regimental Officer. (To be continued.) K.M., November.

Oliver Cromwell as a Cavalry Leader. By Major-Gen. Gradinger. (To be continued.) K.M., November.

Strategic Reconnaissance, Old and New. A military historical study. By Capt. H. Kerchnawo, General Stak. K.M., November.

The Action of the German Cavalry in the Imperial Manœuvres of 1907. K.M., November.

The Organisation of Cavalry Machine Gun Sections. By Major Immanuel. K.M., August and September.

CHANNEL TUNNEL.

The Channel Tunnel. By G. Viernot (continued). L.S.M., 15th September, 1st October, 15th October, 1st November.

CYCLISTS.

Examination of the Rôle of Cyclists when attached to Reconnoitring Cavalry. L.B.M., 6th and 13th October.

HOME AND IMPERIAL DEFENCE.

Official Opinion on Defence. By the Rt. Hon. Sir C. W. Dilke, M.P. U.S.M., October.

Invasion. By the Military Correspondent of the Times. N.R., November.

Some Considerations on Home Defence. By Major F. G. Fuller, R.E. R.E.J., November.

Modern Artillery in the Defence of our South Coast. By Col. S. A. E. Hickson, D.S.O. R.E.J., December.

Invasion and Imperial Defence. By J. Leyland. N.C., December.

Defenceless Scotland. By H. W. Wilson. N.R., December.

The Possibility of Invasion. By a Civilian Thinker. U.S.M., December.

An Exhortation to National Servitude. By H. Prevost Battersby. N.I.A., December.

THE EMPIRE.

Burma under British Rule. Q.R., October.

Imperial Organisation. C.O.J., October.

Military System of the Future in the British Empire. Communicated by desire of the Secretary of State for War. J.U.S.I., October (concluded from September).

Views on the Anglo-Russian Agreement—

1. *Relative Loss and Gain.* By Perceval Landon.

2. *The Question of Persia.* By Angus Hamilton.

F. Rev., November.

The Anglo-Russian Convention. By Professor A. Vambéry. N.C., December.

The Position in the Persian Gulf. By Lovat Fraser. N.R., December.

The Anglo-Russian Treaty, Afghanistan and Tibet. By Angus Hamilton. U.S.M., December.

ENTRENCHMENTS.

The Use of Entrenchments in the Attack, together with Suggestions regarding Entrenching Tools. By Major E. J. M. Wood, 99th Deccan Infantry. P.U.S.I., October.

EXPLOSIVES.

Engineers and the Use of Explosives. By C. Requena y Martinez. M.I.E., October.

FORTIFICATIONS.

Cement Construction in Fortification. M.A.G., August.

A Change in the Consideration of Fortresses. By H. Frobenius. I.R. Suppl., p. 103, October.

Modern Field Fortification against Artillery Fire. By Major Lüning. (Concluded.) K.T.Z., Vol. 9, 1907.

Fortress Warfare. Lessons from History and Peace Training. I.R. Beiheft 91, November, 1907.

The Defence of the Fortress of Peschiera in 1848. By Capt. Czeike. O.M.Z., November.

Modern Fortifications in Relation to Indirect Fire. By Col. T. Nagliati. R.A.G., September.

HISTORICAL.

The 1st Manchurian Army at the Battle of Mukden. By P. S. Shevtsov. (Concluded.) V.S., September.

On the Left Flank of the Eastern Detachment from the 15th (28th) June to 13th (26th) August, 1904. By v. Klembovski. (Concluded.) V.S., September.

Hundred Years' War. By F. J. Snell. U.S.M., October, November, and December.

Campaign in Bohemia, 1866. By T. Miller Maguire, LL.D. U.S.M., October and December.

Wars of the Turks with the Germans. By Lieut.-Gen. F. H. Tyrrell. (Continued.) J.U.S.I., October and November.

The War of 1870-71. The Investment of Metz. Second and concluding article. (First on p. 131, Vol. 27.) R.H., September.

Regiments of Margueritte's Division and their charges at Sedan. (Continued.) R.C., Vol. 45, pp. 32, 167, 276, 405, 539.

The Commencement of the Austrian Succession. (First Article.) R.H., Vol. 28, p. 1.

Yunan Expedition of 1875 and the Cheefoo Convention. By Gen. H. A. Browne. (Concluded.) A.Q.R., October.

History of the War in South Africa. M.W.B., 22nd October.

The Expedition against Kandy in 1804. By Major Astley Terry. U.S.M., December.

HAGUE CONFERENCE.

The Second Hague Conference. By Sir T. Barclay. F. Rev., October.

INDIA.

Some Racial Characteristics of Northern India and Bengal. By Ameer Ali, C.I.E. N.C., November.

Decentralization and the Defence of India. By Col. L. J. H. Grey, C.S.I. U.S.M., October.

INTELLIGENCE.

The Transmission of Military Intelligence. By Lieut.-Col. G. P. Scriven, Chief Signal Officer. Department of the East, Signal Corps, U.S. Army. J.M.S.I., November and December.

MANŒUVRES.

The Périgord Manœuvres. By Captain E. Balédyer. R.M.S., October.

The French Manœuvres. By H. R. Reade. Emp. R., November.

MEDICAL.

An Attempt to enunciate Principles for the Plan and Execution of the Evacuation of Sick and Wounded in War, also for the Organization and Employment of Hospital Trains. M.A.G., August.

Notes on Staff Work as applied to the Medical Services. By Lieut.-Col. W. G. Macpherson, C.M.G. J.R.A.M., October.

The Care of the Feet in the American Army. By Capt. C. R. Sylvester-Bradley. J.R.A.M., November.

Medical Recruiting Statistics for Austria-Hungary in the years 1894-1905. By Dr. P. Myrdacz. O.M.Z., October.

The Role of the Red Cross Societies in Peace and in War. By Lieut.-Col. W. G. Macpherson, C.M.G. J.U.S.I., November.

Feeding of Troops en Route. By Capt. W. S. White, Assistant Surgeon, Illinois N.G. J.A.M.S., September.

Use of Milk and Coffee Extract in the Russian Army. By Vladimir F. de Niedman. J.A.M.S., September.

The Quarantine Hospitals of the French Colonies. By Méd.-Major Morel. A.H.M. (3), p. 350, 1907.

A Plan for the Expansion of the Army Medical Service in War. By Major F. P. Reynolds, U.S. Army. J.A.M.S., October.

French Impressions of the Medical Service of the Rear in Manchuria. By Capt. C. S. Butler, 8th Regt. Massachusetts Volunteer Militia. J.A.M.S., October.

Rifle Bullet, Shrapnel, and Shell Wounds in the Russo-Japanese War, and comparative Casualties. Note on Article by M. I. Glagoleff and P. Koltchin in the *Cirurgia* of Moscow. *Lancet*, November 9th.

Heart Disease and the Service. By Lieut.-Col. R. J. C. Cottell. J.R.A.M., November.

The Disposal of the Wounded of Mounted Troops. By Lieut.-Col. H. Hathaway. J.R.A.M., November.

The Inefficiency caused by Pustular Skin Eruptions, and their association with the Regulation Flannel Shirt. By Lieut. E. L. Moss. J.R.A.M., November.

The Campaign against Malaria in German Colonies and in the German Navy since 1901. By Professor Dr. R. Ruge, Marine Generaloberarzt. A.F.H. (No. 22), 1907.

Scurvy During the German South-West African Expedition. By Stabsarzt Dr. Franz. D.M.Z., November.

The Medical Service of the First Line in Siege Operations. By Méd.-Major Finot. A.M.P., November.

Method of Improvising a Stretcher Support and Instrument Table at a Regimental Dressing Station. By Méd.-Major Barthélemy and Méd.-aide-Major Morisson. A.M.P., November.

Typhoid Fever in the Garrison of Tébessa from 1890 to 1906. By Méd.-Major Chaudoye. A.M.P., September.

A Simple Method of Carrying Wounded. By Generaloberarzt Schill. D.M.Z., 5th October.

Enteric Fever in War. By Major W. S. Harrison. J.R.A.M., December.

Report on the Work of the German Expedition for the Investigation of Sleeping Sickness. By Professor R. Koch. Translated from the *Deutsche Medizinische Wochenschrift* by Lieut. A. I. Fortescue. J.R.A.M., December.

Anti-Typhoid Inoculation. By Major H. J. M. Buist, D.S.O. J.R.A.M., December.

MISCELLANEOUS.

Bremer Electro-Automatic Target. R.M.B., Part I., 1907-8.

Japan and Korea. By Angus Hamilton. U.S.M., October.

Non-Commissioned Officers in France and Germany. By Major E. Manceau. (Continued.) Vol. 12. 1907.

Travelling Kitchens (in French). I.R., Suppl. 103, October.

The Acquisition of Dalmatia. By Col. Grunzweig v. Eichensieg. O.M.Z., July, August, September and October.

The Offensive Spirit in the Japanese and European Armies of To-day. O.M.Z., October.

The French Military Situation. By Gen. H. Langlois. R.D.D.M., October 15th.

Von Löbell Annual Reports on Military Matters in 1906. Précis from the German by Lieut.-Col. E. Gunter. (See also No. 2, page 20.) J.U.S.I., October and November.

The Importance of Secrecy in War. By Lieut.-Col. P. Izemestiev. J.U.S.I., November.

Judging Distance. By Capt. von Treuenschwert. M.A.G., November.

French Penetration into the Sahara, 1899-1905. L.S.M., 15th October, 1st November, and 15th November.

Employment of Armoured Concrete in some New Military Buildings. By Lieut. Gini. R.A.G., October.

Agricultural Instruction in European Armies. By V. Nazari, R.M.I., 16th November.

NAVAL.

Battle-ship Strength and Relative Value. E., October 18th.

Some Criticisms. By Black Joke. U.S.M., October.

The Fleets of the Powers in the Year 1907. By a Naval Officer. J.D.A.M., October.

ORDERS.

The Art of Issuing Orders. By Col. Spohn. J.D.A.M. (II.), October.

ORDNANCE.

The Thermit Welding Process. Supplied by the Goldschmidt (U.S.A.) Company. U.S.A., September and October.

POLITICAL.

The Kaiser and the Future. By Calchas. F. Rev., December.
France, Morocco, and Europe. By F. de Pressensé. C.R., December.

RUSSO-JAPANESE WAR.

The Prelude to Tsushima. Letters from Lieut. P. A. Vivuboff, Torpedo Officer on the "Kniaz Suvoroff." Translated by Major N. M. C. Stevens, 81st Pioneers. P.U.S.I., October.

Criticisms and Observations of Actual Spectators. O.M.Z., September.

Tactical Instructions given by the Japanese during the Campaign. B.P.B.M., 30th September.

Reflections on the Russo-Japanese War. By General Baron de Heusch, Belgian Army. J.S.M., July, August, and September.

Notes on the Execution of Works at Port Arthur. Transcript from *Inj.* R.E.J., November.

Russo-Japanese War. (To be continued.) R.M.E., September.

REMOUNTS.

Remounts. By Gen. Aleshire, Quartermaster-General United States Army. U.S.C., October.

RAILWAYS.

The Construction and Working of the Field Railway of the 2nd Russian Army in Manchuria. With Sketches and Diagrams. *Inj.*, September.

SANITARY.

Sand Filtration of Water Supplies. By Andrew Williamson, C.E. E., 1st and 22nd November.

SIGNALLING.

Reorganization of Field Optical Signalling Sections on Motor Cycles. By Capt. Anzalone. R.A.G., September.

SUPPLY.

The Supply of the Swiss Army in time of War. By Col. G. Immenhauser. Supplement (Heft. 2) to A.S.M., 1907.

The Principles of Supply of Modern Armies, illustrated by the Russo-Japanese War. M.A.G., July.

SWISS MILITIA SYSTEM.

The Swiss Army and England's Needs. By H. Cox, M.P. N.C., October.

The Swiss Militia System from a Soldier's Point of View. By Major G. F. MacMunn, D.S.O., R.F.A. N.R., October.

The Swiss Militia System. A reply to Mr. H. Cox by Lord Newton. N.C., November.

TACTICS.

How to Practice the Supporting of a Firing Line. By Major W. von Hülsen. M.W.B., p. 3,601, 1907.

Tactical Notes on the Russo-Japanese War. Translated by Capt. C. Otley Place, D.S.O., from J.D.A.M., June. R.E.J., October.

Tactical Momentary Situations for Combined Training. By Lieut.-Col. J. Schön. O.M.Z., September.

The Use of Reserves. By General of Infantry Freiherr v. Falkenhäusen. V.T.H., Vol. 4, 1907.

Infantry and Artillery in the Combat. By Lieut.-Col. Balck (in French). I.R., Suppl. 103, October.

Siege Warfare and the Fortress Manœuvres at Langres, 1906. By Col. Klein (continued). R.M.G., October and November.

Exercises in Reconnaissance and Manœvre Tactics. K.M., July.

Tactical Studies of the Campaign of 1806.

I. Saalfeld. R.H., September.

II. Jena. R.H., Vol. 28, p. 52.

Three Days' Operations Executed by One Division and One Brigade of Cavalry in Covering the Siege of Belfast. B.P.B.M., 15th and 30th September.

Infantry Tactics in the Valley of the Po. By a General Staff Officer, with plans and figures (concluded). O.M.Z., October.

Hints as to Attacking Fortifications (Field and Permanent), drawn from the Wars in South Africa and in the Far East. By Capt. Zell. O.M.Z., November.

Military Operations in Wooded Localities. By Major C. F. Winter, Governor-General's Foot Guards. C.M.G., 22nd October, 12th and 26th November. (To be continued.)

(See also "Artillery," "Cavalry," and "Russo-Japanese War.")

TRAINING.

Training of Skirmishers, Troop Leaders and Section Commanders. O.M.Z., July and August.

Training and Terrain. K.M., July.

Technical Training of the French Infantry. By Major v. Mierka, with plates. O.M.Z., September.

The New French and German Infantry Regulations. By Gen. Bonnal. Deutsche Revue, November.

TRANSPORT.

The Significance of Means of Transport in the Conduct of War. (I. Railways.) (To be continued.) K.T.Z., Vol. 9, 1907.

PART III.

BOOKS, PAMPHLETS, ETC., WHICH HAVE BEEN DISTRIBUTED
TO REFERENCE LIBRARIES.

Drill Regulations for the Field Artillery of the German Army. Translated for the General Staff, War Office, from the "Exerzier-Reglement für die Feld-Artillerie," March, 1907.

Handbook of the Roumanian Army.

Report of a Siege Staff Ride held by the Commandant, School of Gunnery, at Shoeburyness.

Report of a Siege Staff Ride and Siege Manœuvres, Chatham.

Report of the Army Qualifying Examination, September.

Selected Winter Essays, 1906-7.

Handbook of the Medical Services of Foreign Armies, Part I., France.

ABBREVIATIONS.

Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
A.F.H. ...	Archiv. für Schiffs- und Tropen-Hygiene	½ M.	—	Leipzig.
A.H.M. ...	Annales d'hygiène et de médecine coloniale ...	M.	3 frs.	Paris.
A.J. ...	Artilleriskii Jurnal ...	M.	*	St. Petersburg.
A.M.B. ...	Artilleristische Monatshefte ...	M.	m. 2.50	Berlin.
A.M.P. ...	Archives de médecine et de pharmacie militaires ...	M.	2 frs.	Paris.
A.Q.R. ...	Imperial and Asiatic Quarterly Review	Q.	2/6	Woking.
A.S.M. ...	Allgemeine schweizerische Militärzeitung ...	W.	—	Basle.
B.P.B.M. ...	Bulletin de la Presse et de la Bibliographie militaires. (Supplement to J.M.O.B.)	F.	*	Brussels.
C.J. ...	Cavalry Journal ...	Q.	2/6	London.
C.M.G. ...	Canadian Military Gazette ...	F.	10 c.	Montreal.
C.O.J. ...	Colonial Office Journal ...	Q.	1/6	London.
Con. ...	Der Continent ...	M.	m. 1.25	Berlin.
C.R. ...	Contemporary Review ...	M.	2/6	London.
D.M.Z. ...	Deutsche militärärztliche Zeitschrift ...	½ M.	*	Berlin.
E. ...	Engineering ...	W.	/6	London.
Emp. R. ...	Empire Review ...	M.	1/-	London.
F. Rev. ...	Fortnightly Review ...	M.	2/6	London.
Inj. ...	Ingeniarii Jurnal ...	M.	*	St. Petersburg.
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W., published weekly; F., fortnightly; M., monthly; Q., quarterly.

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Abbreviation.	Name of Newspaper or Periodical.		Price.	Place of Publication.
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R.A.G. ...	Rivista di Artiglieria e Genio	M.	•	Rome.
R.C. ...	Revue de Cavalerie	M.	•	Paris.
R. d'A. ...	Revue d'Artillerie	M.	•	Paris.
R.D.D.M. ...	Revue des Deux Mondes	4 M.	3 frs.	Paris.
R.E.J. ...	Royal Engineers' Journal	M.	1/6	Chatham.
R.H. ...	Revue d'Histoire	M.	2 frs.	Paris.
R.M.B. ...	Revue de l'Armée belge	2 M	—	Liège
R.M.E. ...	Revue militaire des Armées étrangères	M.	1 fr.	Paris.
R.M.G. ...	Revue militaire générale	M.	2.50 fr.	Paris.
R.M.I. ...	Rivista militare italiana	M.	2 lire	Rome.
R.M.S. ...	Revue militaire suisse	M.	•	Lucerne.
U.S.A. ...	United States Artillery Journal	2 M.	50 c	Fort Monroe
U.S.C. ...	United States Cavalry Association Journal	Q.	50 c.	Fort Leaven- worth.
U.S.M. ...	United Service Magazine (Colburn's)	M.	2/-	London.
V.S. ...	Voyennii Sbornik (Military Journal)	M.	—	St. Petersburg
V.T.H. ...	Vierteljahrshefte für Truppenführung und Heereskunde	Q.	—	Berlin.

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